

Inside Computerworld

May 6, 1996

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DO YOU KNOW . . .

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Techn...**NEWS**

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By Michael S. Karpinski and Bill McCarthy With Dennis R. Murphy

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altcw

Los Alamos National Laboratory in Los Alamos, N.M., is developing a virtual safety lab for General Motors that may put the famous "crash test dummies" out of work. The problem is that each crash test costs an average of \$750,000, and automakers must perform many tests for different models and accident scenarios. The goal of the four-year project is to develop a supercomputer simulation that integrates vehicle crash responses with human occupant responses. "If these two capabilities can be combined into one model, it means an automotive designer can sit down at his computer and determine whether redesigning an armrest would have any bearing on the safety of a 6-ft., 200-lb. occupant during a collision," says researcher Bill Wray.

Couplers & Lybrand reports that "at least one company we know of decided to sell its business rather than invest the resources needed" to convert its systems to handle the year 2000.

Here are some quick-hit Web servers that produce automatic responses to your most pressing questions:

• Excuse generator at <http://www.dld.com/excuse>. The click of a button produces excuses to handle problems from "missed deadline" to "had to refer mat your hard drive."

• Phrase finder at <http://www.slu.ac.uk/web-admin/phrases/>. Type in a word, and get a list of related phrases.

• URL Roulette" at <http://www.ure roulette.com/games>. Click a button to be linked to a random Web address. Where you'll land, nobody knows.

• World population counter at <http://sunsite.unc.edu/usunshin/worldpop>.

• Anagram server at <http://www.infochimps.com/pages/anagram.html>. Type in a word or phrase, and get a list of anagrams (letters rearranged to form new words).

• Famous birthdays at <http://www.eh.com/calendar/calendar.html>.

• Bar code server at <http://www.milk.com/barcode>. Type in an 11-digit number, and see what it looks like as a bar code.

Need to jazz up your Web site to boost traffic? Interactive Features Syndicate in Seattle has "plug-in marketing modules" that let webmasters quickly garnish at the site. Visitors who sign the guest register will see the cartoon personalized with their name in the punch line, while the corporate sponsor can add the visitor information in a marketing database. The service can be previewed at <http://www.interactivefeatures.com/>. A rival service, called Web Features, can be previewed at <http://www.webfeatures.com>.



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COMPUTERWORLD MAY 6, 1996 (<http://www.computerworld.com>)

Highest-paid CEOs in the information technology industry

James Donald, DSC Communications
Casey Cowell, U.S. Robotics
Eckhard Pfeiffer, Compaq Computer
Lawrence Ellison, Oracle
Louis V. Gerstner, IBM

*Salary, bonus and long-term compensation, including stock options

HIGH-TECH CEOs WHO GAVE SHAREHOLDERS THE MOST FOR THEIR PAY

	1995 SALARY & BONUS
Andrew Ladwick, Bay Networks	\$1.3M
William Gates, Microsoft	\$1.3M

**Increase of stock price and dividends

CEOS WHOSE COMPANIES DID WORST RELATIVE TO THEIR PAY

	1995 SALARY & BONUS
Louis V. Gerstner, IBM	\$4.8M
Michael Spindler, Apple Computer	\$3.4M

Sources: April 22 Business Week, McGraw-Hill Co., New York

News short

Intel unveils videoconferencing

Intel Corp. last week announced a desktop videoconferencing system based on its ProShare technology. The system costs about \$1,500, down from \$2,000 for the previous version.

Intel's ProShare 200 system can handle incoming video calls from multiple sites, so it isn't just a "point-to-point" conferencing system.

But whether users will deploy the technology is another question. "We don't see it as vital to our organization yet," said an information systems manager at a New York financial institution.

Scott Katsaroff, executive director of New Media Forum, a multimedia user group in New York, said several large companies are beginning to develop multimedia and video-conferencing applications. "It's just getting off the ground, but there's a lot of work going on," he said.

Intel is Santa Clara, Calif., said future ProShare systems, which will be available later this year, will be software-only systems. That will further reduce their cost and complexity.

And future systems will require only a standard telephone line. The current version

requires an add-in PC card that must be linked to a high-speed Integrated Services Digital Network line — not a standard feature in most offices.

PC vendor Compaq Computer Corp. in Houston and IBM PC Co. in Armonk, N.Y., said they will bundle the ProShare technology with corporate desktop PCs.

For more News alerts, see page 8

This week in



QuickPoll

This week's QuickPoll asks whether users will jump on the Internet telephone bandwagon.

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ctoid of the week

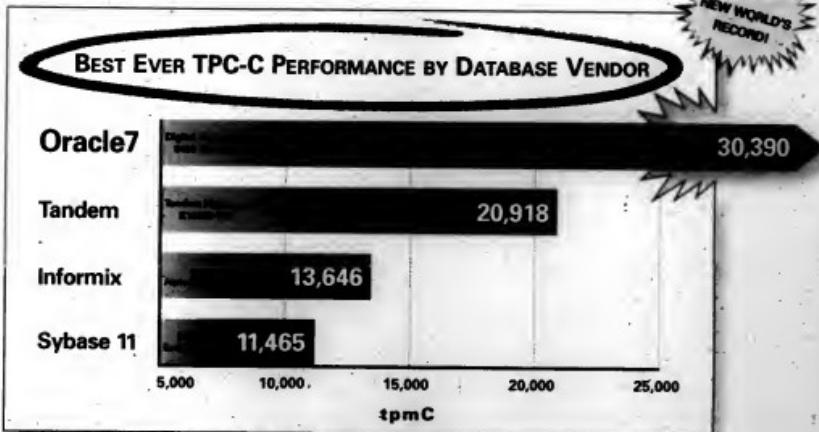
Data warehousing yields an average return on investment of 40% after three years, according to a study of 62 organizations. The average payback period was 2.3 years. Discrete warehouses that address a specific information need had greater returns than enterprisewide warehouses.

Source: International Data Corp., Framingham, Mass.



Oracle7 Parallel Server: Safe at any Speed

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City to DEC: Shape up or we run this ad

By Robert L. Scheier

It's a CEO's fantasy: Fed up with delays in a vital systems integration project, you tell the vendor to show up or you'll run an ad publicly airing your complaints.

Worcester, Mass., Mayor Raymond Mariano did just that last month in the midst of a dispute with his neighbor and systems vendor, Digital Equipment Corp. Once Digital officials entered City Hall to see a mock-up of the ad proposed on an easel, they agreed to pay the city \$33,000 a month to maintain its existing applications while Digital tries to finish the new ones.

Digital also took other steps, such as placing a developer onsite, which left Mariano "upset" that the system, delayed for 10 months, could be finished by the end of June.

An issue are a series of tax processing applications that must be online before the city can unplug

its aging Honeywell Inc.-Group Bell mainframe. They are the only unfinished pieces of a \$7 million, three-year contract with Digital to move the city's previous hodge-podge of systems to Alpha servers and VMS and Unix.

"My frustration was that [city officials] weren't getting corporate attention for this problem," said Mariano, who runs a marketing and management consulting firm in addition to his official duties.

"I understand how important corporate image is to a company. I suggested that if we could not get the proper people to pay attention to the problem, that we communicate our displeasure to other mayors and other managers around the country."

It wasn't a question of only the \$33,000 per month it takes to keep the old system running, Mariano said. "Without [new system], we continually waste resources."

You can't fight
city hall

...not when it's prepared to run on ad like this, the brandish of Worcester, Mass., Mayor Raymond Mariano. The city dropped its plans to sue Digital and agreed to compensate it for extra costs the city will incur while the company completes the overdue system.

When asked what delayed the project, a Digital official said one factor was that "there have been a lot of change requests" from the city, including one in November 1994 to replace the vendor who was providing the finan-

cial management applications. Digital agreed to the change but warned city officials that the shift would make the July 1, 1995, com-

pletion date "a very, very high-risk date," said Paul Bresnahan, a customer program manager at Digital in Shrewsbury, Mass.

"The city didn't ask for a change in vendors because they were just in the mood to change," Mariano shot back. "We weren't getting the service necessary to get the system up and moving. The vendor is the responsibility of the contractor [Digital]. Had the original vendor done the job ... there would have been no request for a change."

Digital officials denied that the ad motivated the payments to the city. "They did not drive our thinking," said Ann Hurst, state and local government relations manager at Digital in Maynard, Mass. "It's primarily ensuring that the customer is satisfied."

Mariano insisted the ad wasn't a threat but "simply a method to get their attention." Did it work? "They seem to be fully focused," he said.

THE WALL STREET JOURNAL

**Hey, Digital...
it's still not
working!**

After months of research, failure and hundreds of thousands of dollars in rework, the City of Worcester still doesn't have the equipment required in its RFP.

Reported by Michael S. Hiltzik
Illustration by Tom Stoenner

Pentium Pro PCs pack NT, move in on workstations

By Craig Stidman

PC systems based on the Windows NT operating system and Pentium Pro chips are starting to worm their way into engineering and design applications previously reserved for Unix workstations.

Pentium Pro systems should begin to pose a greater threat to Unix desktops later this year and into next year, as more technical software becomes available on Microsoft Corp.'s Windows NT.

This marks the first batch of PCs powerful enough to target the heart

of the workstation market, although they are doing so "in a spotty sort of way" for now, said Tom Copeland, an analyst at International Data Corp. in Framingham, Mass.

Windows NT still doesn't support many of the applications workstation users rely on. And Intel Corp.'s Pentium Pro can't match RISC microprocessors on floating-point speed or I/O.

But half a dozen users last week agreed that the new breed of Pentium Pro systems that emerged in the last six months will give the PC approach — with its price and convenience benefits — a better chance to compete against Unix machines.

"If I/O is a factor, you can't go cheap. But for things that aren't heavily I/O-bound, a Pentium Pro is much more cost-effective," said David Prussak, a senior research fellow at DuPont Co. in Wilmington, Del. DuPont's computer sciences research group

started buying Pentium Pro-based systems two months ago for use in basic research alongside its Unix workstations.

The Pentium Pro boxes cost less than \$6,000; a comparably equipped Unix machine, such as Sun Microsystems' Inc.'s Ultra 1, would cost more than twice as much, Pensak said. But Pentium Pro hardware provides only about 70% of the CPU power and 40% of the I/O capacity of an Ultra 1, he said. If Intel can do better in the future, "then life [will] get real interesting" for Unix vendors, he said.

Previously, 1995 workstation shipment figures from Datapoint in San Jose, Calif., show small market share

drops for the Top 5 Unix vendors except Silicon Graphics, Inc. (SGI). Meanwhile, the "other" category grew from 15.5% in 1994 to 19.1% last year, due to the gains made by makers of Sun SPARC clones and Windows NT-based systems.

"We're seeing a lot of interest [in Pentium Pro hardware] from our clients. Everybody is asking questions," said Greg Weiss, a workstation analyst at D.H. Brown Associates, Inc. in Port Chester, N.Y. "But software is what people are waiting for."

Because of the limited application support, users who run multiple programs on workstations may not be able to even consider a Pentium Pro box, Copeland pointed out. The machines are attractive mainly to small departments or companies that want a price break and ease of use, he said.

Targeting Unix

With the introduction of Windows NT and the Pentium Pro chip, Microsoft is targeting Unix workstations. Here's a look at some advantages.



Advantages

Prices can be as much as 50% less than Unix workstations

Users can run design applications and PC software on the same box

No learning curve required for users familiar with Windows

Drawbacks

Floating-point performance is about half that of Unix systems

Key technical applications aren't yet ported to Windows NT

Better high-end graphics capabilities are needed

Don Minarik, principal mechanical engineer at Barnes-Cox, a maker of lab instruments and pumps in Bellingham, Ill., used to share time on a Unix workstation. "But I wanted something that would handle CAD software and also let me keep my normal Windows environment," he said.

Minarik has used a Windows NT-based machine made by Intergraph Corp. since January. The Pentium Pro hardware "seems a little bit slower" on design applications than the Unix workstations at Barnes-Cox, "but it's certainly good enough for what I need to do," he said.

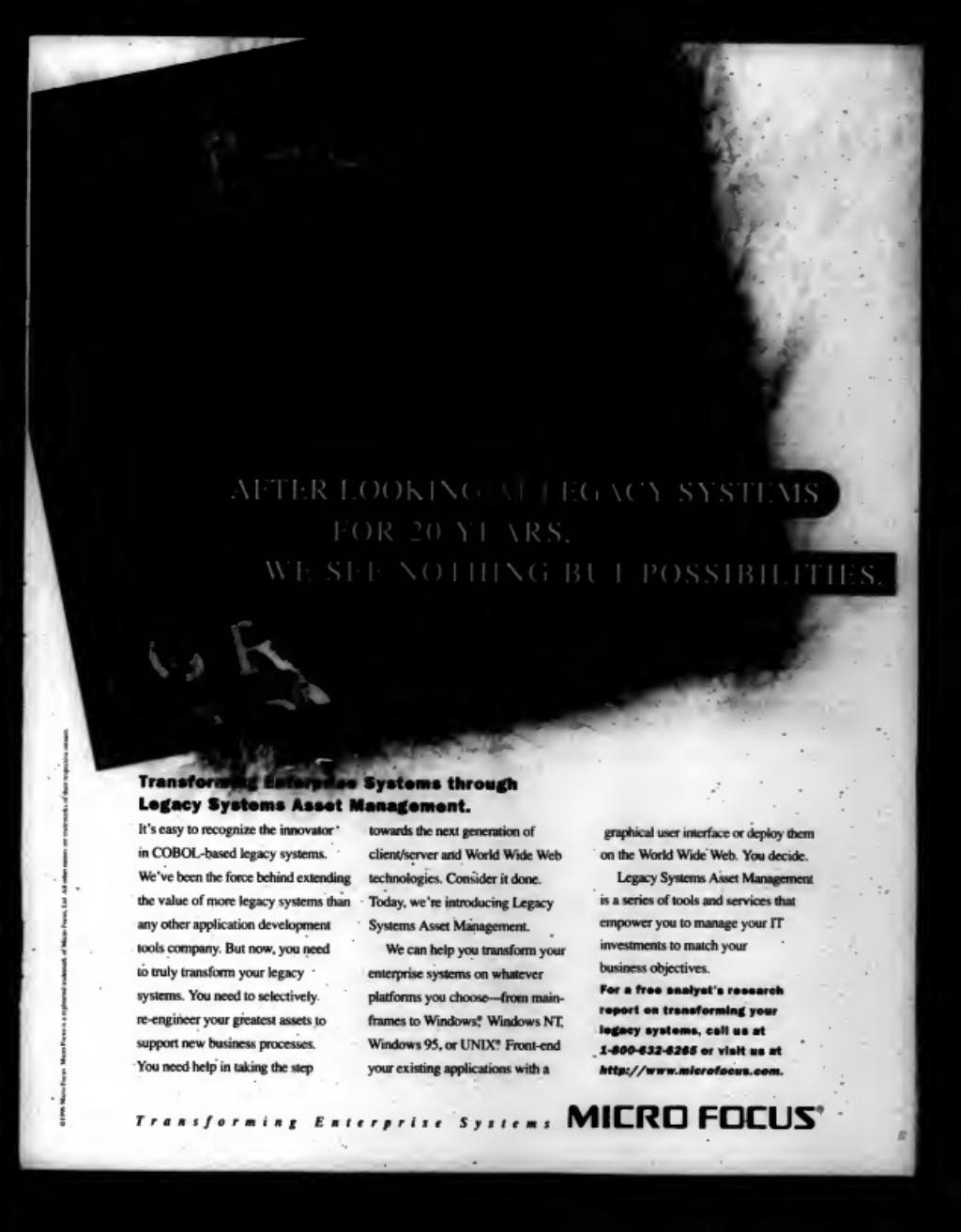
Pentium Pro systems set up as workstations with three-dimensional graphics are available from vendors such as Intergraph, Digital Equipment Corp. and Netpower, Inc. The machines, which provide much better performance than earlier NT models based on the 486 and Pentium chips, are

finding an especially inviting niche in the computer animation industry.

The Vancouver Film School in British Columbia is buying 50 Netpower systems for one-half to two-thirds what it would have cost to expand as installed base of SGI's Unix workstations, said Graham Ginn, program director for animation and digital effects at the school. "SGI's really going to have to come to the plate," he said.

An SGI spokeswoman said its graphics and animation strengths are under increasing attack from Pentium Pro machines. "But a lot of times, those are being compared against our older systems," she said.

SGI in January quadrupled the performance of its entry-level Indigo2 graphics workstation and also cut pricing. New machines with a faster processor that is supposed to double throughput again are due to ship this month.



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Fast Ethernet takes slow ride to desktop

By Bob Wallace

Fast Ethernet may be spreading like kudzu through backbone networks, but the technology needs to scale some serious barriers before it reaches the desktop.

The more formidable of these include high prices for hubs and a lack of demanding data applications that require the speedy 100M bit/sec. LAN transmission technology.

"Fast Ethernet to the desktop is definitely an option, but we really need to first see applications that need that much capacity emerge and vendors dropping the price per port on hubs, which is high," said Mark Maxwell, vice president of global systems management at

Rising star

Cabletron's actions are indicative of the maturing use of Fast Ethernet: just a few years ago, Cabletron dismissed Fast Ethernet to focus on ATM, but it did an about-face and earlier this year bought Fast Ethernet pioneer Standard Microsystems Corp.'s switching unit to enter the market.

Fujii Capital Markets Corp. in New York.

Fujii uses switched Ethernet to the desktop and Fast Ethernet to its servers, but there are no immediate plans to extend the latter technology to the desktop, Maxwell added.

Another user echoed that hesitation.

"We've been using the technology to centralize our many Novell servers to provide users [with] a much higher speed pipe to the applications that run on them," said a network manager at a large Northeast insurance company, who requested anonymity. "I think at some point — maybe three years from now — we'll extend Fast Ethernet to the desktop. But for now, Ethernet switching is just fine for our desktops."

Four years after its introduction, Fast Ethernet has won wide acclaim because it lets servers perform better in client/server networks by replacing 10M bit/sec. cards in their servers with the 10/100M bit/sec. Fast Ethernet cards.

And Fast Ethernet can also unclog pipes between switches in backbone networks by providing connections that run 10 times faster. It is cheaper than Fiber

Distributed Data Interface (FDDB) and the far less mature Asynchronous Transfer Mode (ATM) technology.

Although FDDB is used widely, analysts say the technology remains pricey. An FDDI adapter costs about \$1,140, for example, and a Fast Ethernet adapter is about \$200, according to a recent report from Wessels, Arnold & Henderson in Minneapolis.

And recent user surveys from Infonetics Research, Inc. in San Jose, Calif., show many companies planning to use Fast Ethernet backbones while ATM remains barely in the running.

Although vendors are trying to spur deployment by pricing the 10/100M bit/sec. cards at about twice the price of regular Ether-

net 10M bit/sec. cards, information systems managers have been reluctant to extend the technology broadly to users.

"We have 10/100M bit/sec. cards in hundreds of desktop computers, but we're waiting for the price of Fast Ethernet hubs to come down from about \$160 per port to about \$80 per port," said Rob Roush, a senior systems engineer at Integra Health in Des Moines, Iowa. "That could very well happen in the fall."

Roush did pick up two of the high-priced hubs last year as part of a pro-

5768M

Ethernet's energy

U.S. Fast Ethernet revenue	\$394M
Present	5768M

Source: The Dell'Orto Group, Menlo Park, Calif.

News Shorts

NFS storage servers from Sun Microsystems

Sun Microsystems, Inc. next week will introduce a packaged Network File System (NFS) storage server based on its 167-MHz UltraSPARC chip, sources said. Despite having created NFS, Sun had left the dedicated NFS file server market to small vendors such as Auspex Systems, Inc. and Network Appliance Corp. But now it will target the increasing number of departments and workgroups that use NFS to share files and applications across their LANs. Sun's pre-configured Netra NFS 150 includes a World Wide Web browser-based user interface for systems administrators that runs on PC, Macintosh and Unix clients, the sources said. Pricing starts at \$25,295 with 64M bytes of memory and 8.4G bytes of storage capacity.

Outsourcing win for ISSC
IBM's Integrated Systems Solutions Corp. (ISSC) subsidiary has won one of the biggest outsourcing deals to date, a multi-billion-dollar, 10-year outsourcing agreement with Ameritech Corp. ISSC will manage Ameritech's data center operations, ongoing consolidation efforts and help desk services. Additionally, ISSC will implement a comprehensive disaster recovery program.

White flag from McAfee

McAfee Associates, Inc. ended its pursuit of Cheyenne Software, Inc. with a whimper, not a bang, last week, withdraw-

ing its \$1 billion offer for the network backup software giant, McAfee, a LAN management vendor in Santa Clara, Calif., pulled the plug on the increasingly scrutinized takeover attempt but said it was still willing to consider a friendly merger.

More price cuts from Intel

Intel Corp. in Santa Clara, Calif., will drop prices on its Pentium and Pentium Pro processors this week. Intel will cut its 200-MHz Pentium Pro to \$707, down from \$857. Pentium chips also get a cut, with a

150-MHz Pentium chip dropping to \$364 from \$428. Intel will also introduce a new lower-priced chip set that will reduce the cost of a 200-MHz Pentium Pro desktop PC to about \$3,000, down from \$4,000.

More losses for AST

AST Research, Inc.'s financial woes seem to be deepening. The Irvine, Calif.-based PC maker last week reported a first-quarter loss of \$115.8 million on revenue of \$323.8 million. The company blamed falling demand, excess inventory and pricing pressures for the loss. AST has reported losses totaling more than \$400 million over eight consecutive quarters. As a result of its latest losses, AST last week said it will lay off 300 employees, or about 5% of its workforce, as part of a \$15 million restructuring effort.

Antivirus fix from Symantec

Symantec Corp. in Cupertino, Calif., said it has released a patch to correct a flaw in its Norton Anti Virus '96 (NAV96) software program that can — in certain circumstances — corrupt data on Windows NT servers. A customer spokesman further acknowledged that if the NAV96 package is used to scan the new-style NTFS volumes on Windows NT Server hard disks, it will corrupt the file attributes. This could result in hidden files or, in a worst-case scenario, crash the server.

Merger for CSC, Continuum

Computer Sciences Corp. (CSC) and The Continuum Co. in Austin, Texas, have agreed to merge in a \$1.5 billion stock swap. The agreement, which was unanimously approved by the boards of both companies, will provide El Segundo, Calif.-based CSC with inroads into the insurance and banking software and services markets.

Web site software from Lotus

Lotus Development Corp. plans to make available a Notes-based application that helps Notes users create Web sites. Called WebMaster's Apprentice, the software provides templates and smart boxes for users to create a common look and feel across as many pages on the Web site as needed.

New apps from PeopleSoft

PeopleSoft, Inc. in Pleasanton, Calif., will significantly expand its enterprise software offering when it rolls out its newest manufacturing applications suite, Manufacturing Management Suite 13. The new manufacturing modules are engineering, bill of material, product management, production planning and cost management. Pricing begins at \$90,000 per module. General availability is scheduled for November.

Oracle: #1 in OLAP, too.

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Features	Oracle	Sybase	Informix
Relational and Multidimensional Data	Express Server	No	No
OLAP Development Tools	Express Objects	No	No
OLAP Applications	Sales Analyzer Financial Analyzer	No	No
End-User OLAP Analysis Tools	Express Analyzer	No	Yes
Number of Databases Supported Directly	8	8	1



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Xylan goes up against switching kingpins

Company's OmniSwitch will support all types

By Bob Wallace

Users soon will be able to get every type of LAN switching in a single box.

Upstart Xylan Corp. this week will an-

ounce wares that will give users what the Big Four — 3Com Corp., Cabletron Systems, Inc., Cisco Systems, Inc. and Bay Networks, Inc. — can't yet offer.

Xylan's OmniSwitch will be able to

support Ethernet, Token Ring, Fast Ethernet, Fiber Distributed Data Interface (FDDI), Copper Distributed Data Interface (CDDI) and Asynchronous Transfer Mode switching.

One large user opted for Xylan over the

made empty promises about Fast Ethernet switching.

Although some of these vendors offer low-end Fast Ethernet hubs, only a few have added Fast Ethernet switching to their high-end hubs.

"Everyone promised Fast Ethernet, but when it came time to deliver, only Xylan had it," said Fred Cook, manager of technology strategy at Van City Savings, a Vancouver, British Columbia, credit union with \$4.3 billion in assets.

OmniSwitch stats

SWITCHING MODULE	CABLE TYPE	PRICE
5-port Ethernet	Twisted-pair	\$4,450
8-port Ethernet	Fiber	\$6,950
4-port Fast Ethernet	Twisted-pair	\$6,750
8-port Fast Ethernet	Twisted-pair	\$8,950
6-port Token Ring	Fiber	\$10,950
4-port FDDI	Fiber	\$10,950
8-port FDDI	Fiber	\$16,950

"And we absolutely wanted to have all the switching options Xylan has," Cook said. He replaced Kalpana, Inc. and SynOptics Communications Inc. hubs.

Van City desperately needed Fast Ethernet switching because a large imaging application was bringing the firm's network to its knees. "Our LAN segments were getting hammered [on performance]," Cook recalled.

Analysts said having a breadth of switching options in one box is becoming more desirable.

"LAN decision-making has been pushed out to the departmental level, so you're seeing different groups going with different LAN switching technologies," said Tom Nolle, president of CIMI Corp., a Voorhees, NJ., consultancy. "So to reap the largest benefit from switching, users have to go with a switch that offers the widest array of LAN switching options."

Addressing the problems

Nolle estimated that the sites experiencing the most significant media congestion are those with FDDI backbone networks.

Xylan can address these growing user needs with its FDDI and CDDI switching.

The company builds high-performance "mini-switches," or application-specific integrated circuits, into its switching modules and loads them with high-speed, top-of-the-line RISC processors.

But does Xylan have a chance against the Big Four switching kingpins?

"Yes, and that's because by supporting all LAN switching options, they can go in to see any IS manager and talk switching without having to worry about what prior LAN technology decisions that manager has made [over the years]," Nolle said.



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Pentium Pro multiprocessing. Another first.



Some user groups battered...

OURS searches for new members, new focus to battle back

By Craig Stedman

OURS wants to be yours.

After working in relative obscurity the past few years and losing some members, the Open User Recommended Solutions (OURS) group is trying to keep its flame from flickering out.

OURS, which lists 40 members down from 53 in 1993, last week said it wants to attract new users.

Current membership is split almost equally between users and vendors.

Target figures
OURS hopes to add 20 to 25 new members this year — primarily users. Its goal is to double its membership by the end of next year.

The group, which distributes guidelines for distributed and multivendor computing, is trolling for new members in vertical industries such as retail, manufacturing and insurance. OURS also

is looking to open itself up by making its guidelines to nonmembers and by sponsoring a series of technology forums.

OURS is one of the organizations that rushed into the interoperability breach created by open systems.

Stocked with heavyweight companies, the group works through task forces that propose generic frameworks for users and vendors to follow.

It made an early splash with white papers on topics such as software licensing and network management.

But it admittedly grew more lawfully focused.

"There's been an ongoing debate as to whether this

should be an organization for the membership or one that sought a wider influence," said William Strathern, an OURS member and former director of information services at Unisys

... others are beaten, as MMA shuts its doors

By Bob Francis

The Microcomputer Managers Association (MMA) in New York quietly filed for bankruptcy earlier this year following a court judgment of \$85,000 against the organization.

The group probably won't reconstitute itself, said Len Steinbach, an information systems manager in New York and the most recent president of the MMA. "Most members are joining other groups, which are more directly connected with their work, such as multimedia organizations," he said. At its peak, the MMA listed 3,000 members worldwide.

The court action that led to the group's filing for bankruptcy was initiated by Priscilla Tate, a former executive director of the

MMA. Tate, a founder and now director of the Technology Managers Forum (TMF) in New York, said the MMA didn't pay her for work she did at the organization. This prompted her to file for binding arbitration.

The TMF conducts arbitrations for MMA managers.

The MMA was one of the first professional organizations for the PC manager in the early 1980s. PCs were just entering corporations at the time, and many PC managers were new to information processing.

As PCs became standard in the corporate computing landscape, the MMA was able to swear high-profile speakers such as Microsoft Corp. Chairman and CEO Bill Gates and Jim Mazzu, then of Lotus Development Corp.

COMPUTERWORLD May 6, 1996 (<http://www.computerworld.com>)

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With the announcement, Maynard, Mass.-based Digital Alpha NCR Corp. and Computer Components Corp. will merge.

Digital refused to comment on the announcement product.

"It makes sense to use clustering technology to extend the range of NT systems to reach further into the midrange Unix

Camp Corp. in Wayne, N.J.

Gene Raphaelian, an analyst at Gartner Group, Inc. in Stamford, Conn., who did a client/server job skills study with OURS in 1993, said the group has disappeared from his view since then.

"At the time . . . they didn't really know what they wanted to be when they grew up," he said.

Guidelines developed by OURS have been adopted by some members, but the group hasn't cut a wide swath, said Ron Shepherd, vice president of technology planning at The Chase Manhattan Bank Corp. in New York.

"If I'm going to deal with a vendor that's not an ASIM member, I have to do some jawboning to try to get them to implement this stuff," he said.

The annual membership fee for user companies is \$5,000; vendors pay up to \$30,000.

The Chicago-based group said it's setting up a formal program to make its white papers available to nonmembers at a cost of \$50 each; that will cover materials and distribution.

Upcoming papers will cover subjects such as directory services and mobile computing.

SIM offers to scoop up ASM members

By Thomas Hoffman

Even industry user groups are being hit by the downsizing wave.

The Association for Systems Management (ASM) will take a hard look at the future when it convenes for its 49th annual conference this week in Nashville.

Battered by declining enrollment, the Cleveland-based user group has been considering various options for its remaining 3,000 members.

Calling all members

International ASIM President Ann Purrr

"SIM is the only organization we want to"

The Society for Information Management (SIM) last week extended an offer to all ASM members to join its group — as long as they meet SIM criteria as information systems officers at the vice president level or above, according to a spokesman for the Chicago-based group.

That could represent more than 80% of ASM's members, said Ann

Purr, international president of ASM.

SIM "is the only organization we want to," Purr said. "I didn't want to produce a Chinese menu kind of option [for ASM members]."



The good days

ASM, composed of 15 professionals from programmers to chief information officers, saw its enrollment peak at 8,500 members in the mid-1980s.

Its enrollment has dwindled as corporations have shifted their IS professionals into products and vendor-specific user groups, said Wally Francis, director of the New England chapter of ASM.

SIM, which is made up of top-level information technology executives, has grown steadily to 2,700 members since it was conceived in 1968 as the Society for Information Management Sys-

tem.

server space," said James Goss, an analyst at Technology Business Research, Inc. in Hampton, N.H.

Mike Schausberger, a vice president of MIS at AMB Investment Management & Trust Co. in Chicago, said, "This is certainly something that adds another piece to the puzzle as far as migrating applications to NT is concerned."

Todd Siefer, a systems manager at Allis-Chalmers, Co. in Milwaukee, lauded the built-in redundancy. "After having seen clustering in the VMS space, you might fit when you don't see it in NT," he said.

Part of the pack

With the announcement, Maynard, Mass.-based Digital Alpha NCR Corp. and Computer Components Corp. will merge.

Digital has used clustering technology for years to extend scalability and availability in its

VAX systems. The company is working with Microsoft to develop clustering technology for Windows NT that each company will separately.

Digital next week will deliver clustering as a software add-on to NT server. Microsoft is expected to embed it in the kernel of the operating system and may sell it as a separate product.

Wolpack, the initial implementation of Microsoft's NT clustering product, is expected to be available early next year. Wolpack will contain elements of Digital's clustering technology.

"You could say that Microsoft is using Digital's blueprint but its own bricks and mortar" to build the product, said Terry Sheasay, editor of "Shannon Knows DEC," a newsletter based in Andover, Mass.

DEC doles down deeper into NT. See page 45.

DEC wraps NT in security blanket

By Jayshree Vijayan

Digital Equipment Corp. is the latest vendor to try to make Windows NT a safer place in which to run mission-critical applications.

Digital next week will announce clustering software for Microsoft Corp.'s Windows NT Server 3.51 and that will provide automatic fail-over capabilities. This will let network administrators run two NT servers together. If one goes down for any reason, the other will automatically take over.

The software, Digital Clusters for Windows NT, is expected to cost about \$1,600 per server. It will run on servers based on Intel Corp. and Digital Alpha processors.

Digital refused to comment on the announcement product.

"It makes sense to use clustering technology to extend the range of NT systems to reach further into the midrange Unix

systems space," said James Goss,

an analyst at Technology Business Research, Inc. in Hampton, N.H.

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Hot showgoers cool toward Java

By Mitch Wagner
SAN JOSE, CALIF.

The 40,000 hot and sweaty attendees at Internet World '96 here last week weren't interested in java.

With temperatures soaring into the 90s and air-conditioning systems collapsing under the load, the last thing showgoers wanted to think about was a hot, steamy cup of joe. San Microsystems, Inc.'s Java programming language wasn't a top priority, either.

But information systems managers buttonholed on the show floor were eagerly looking for technology to connect the Internet with mainstream IS technology, including development tools and tools to link the Internet with relational databases and groupware.

"It's essential that we get these kinds of tools as we move beyond static information displays and into true electronic commerce," said Al Norton, who leads the on-line marketing and electronic commerce effort at 3M in St. Paul, Minn.

Norton and he was looking for vendors to provide electronic data interchange software for the Internet and to strengthen the ability to share information among proprietary groupware and Internet-based applications.

Corroborating accounts
IS consultant Ned McDaniels of Oakland, Calif., agreed. He said he is impressed by the Internet links that Microsoft Corp. is building into its BackOffice products. "They've put some flavor user interface technology on SQL Server," said McDaniels, a programmer at Pacific Telesis Group, the parent company of Pacific Bell.

Donna Matthewson, a user interface design consultant at Cirrus Logic, in Fremont, Calif., said she was looking for technology to link Cirrus with its suppliers. The company currently distributes copies of its inventory databases to its suppliers, but "having data all over the place like that scares me," she said.

Cirrus instead is considering giving vendors access to a World Wide Web site where they could keep Cirrus informed about orders or problems.

Users at the show also were looking for easy-to-use and powerful development tools — prefer-

bly ones that are compatible with tools they already use.

Corey Shadé, an administrator at Al Renta in San Jose, Calif., said he was looking for basic editors for laying out text and graphics online and editing the Hypertext Markup Language (HTML) used for formating documents on the Web.

Shadé said he was impressed by Adobe Systems, Inc.'s PageMill software, which was designed for that purpose. "I use Illustrator and PageMaker for brochures, and so PageMill is easy because many of the commands are the same. I don't have to mess around with HTML, which is intimidating," he said.

Seas Hansen, systems engineer at Electronic Data Systems Corp. in Rancho Cordova, Calif., said he was looking for development tools compatible with Microsoft Corp.'s PowerBuilder (see related story at right).

Hansen said he is working on an EDPS project to build an intranet for internal communications at California's welfare-benefits program.

What do intranets and client/server have in common? Hidden costs. See page 37.

AT&T gets late start in Web hosting game

By Kim Girard

Playing catch-up with long-distance rival MCI Communications Corp. and Internet service providers, AT&T Corp. is offering Web hosting packages to businesses.

For between \$500 and \$600 per month, AT&T's Easy World Web Services will provide site creation software, hands-on training, access to Web site designers and server space.

AT&T advantage

Analysts said AT&T is late to the market. But if you are the biggest kid on the block, you don't necessarily have to be the first, said Robert Rosenberg, president of Insight Research Corp. in Livingston, N.J.

"It's clear that AT&T hasn't been the leader here," he said. "The leader has been MCI," which introduced a similar busi-

PowerBuilder 5.0 gets 'net support

By Frank Hayes

As corporate developers search for better development tools for the Internet and the World Wide Web, PowerSoft Corp. this week will officially unveil a version of PowerBuilder that adds Internet support to the popular visual development system.

PowerBuilder 5.0 was designed to let developers split applications between a PC client and a Windows NT or Unix-based server. Another feature allows it to speed up applications by compiling them to native code, according to PowerSoft in Concord, Mass.

The new version costs \$2,995 and will ship by early June for Windows 95 and Windows NT. The company will ship versions for Macintosh and Unix platforms later this year.

What's to like?

"The application partitioning and cross-platform support is great," said Peter Pollack, vice president of new technologies and architecture at Showtime Networks, Inc. in New York. "It means the business logic of an application can go on the server, or the workstation or wherever you want it, and we plan to take advantage of that."

PowerBuilder isn't the only latecomer to application parti-

titioning. Microsoft Corp. added a rudimentary ability to partition applications to Visual Basic only last fall. Gupta Corp. added partitioning to its SQLWindows this spring and changed the name of the product to Centura.

New in PowerBuilder 5.0

- Application partitioning for reduced PC client size
- Compiled code for speed
- OLE support for connecting to other Windows applications
- Intranet Web support for application access across the Internet

The revamped PowerBuilder applications require less memory and processor power from PCs for client applications than today's versions. Currently, many "fat clients" built with PowerBuilder, Visual Basic and other development tools require that PCs have fast processors and 16M bytes or more of memory.

Windows applications built with PowerBuilder 5.0 will also support Microsoft's OLE technology. That will give users access to other applications, such as Microsoft Excel spreadsheets and Word documents, from within Power-

Builder applications.

But users said they are also excited about newly announced Internet-oriented features that will be added to PowerBuilder later this year. PowerBuilder DataWindows, which are used for database access, can be converted to plug-ins for Netscape Communications Corp.'s Navigator browser.

Also being tested is the ability to use a Web browser to access a PowerBuilder application that runs on the Web server.

"We're really looking forward to it. We've been using [Web] technology to get to a lot of our users, and this helps solve our application distribution problem," said Raymond Odem, a systems programmer at the Pierce County Information Services Department in Tacoma, Wash.

Web browsers are attractive, because they run on many kinds of computers and don't require fully loaded, fat-client PCs, Pollack said. "But what's lacking [in most Web-development tools] is robust forms control. We'd love to see DataWindows down to have better control of screens, forms and database access for Web applications," he said.

Reusing objects isn't easy.
See page 62.

AT&T offers Internet storage

Services and functions

- Bandwidth capacity on demand.
- Microsoft's FrontPage software to create home pages.
- Access to the staging server, which allows customers to preview and make changes to their Web sites before publishing on the Internet.
- 200M bytes of server storage per month for Web pages.
- Visitors to a Web site can download up to 200M bytes of data per month.

from her computer.

Price was the deciding factor for Jeffrey Goebel, MIS director and chief information officer at Tanev Corp., a national star builder and parts supplier in Tanevtown, Md.

"We researched other compa-

nies, and it was cost prohibitive. We were getting quotes of \$5,000-plus," he said. Using the AT&T network, the company avoided installing extra telephone lines to handle server traffic, investing in a protective firewall and buying a server and support software for the server, he said.

MCI upgrades

CONTINUED FROM PAGE 1

cy backhaul capacity.

"What this means to us is that we can get the bandwidth we need to transmit high-quality voice, data, and video programming," said Peter Pollack, vice president of new technologies at cable television Showtime Networks, Inc. in New York.

"Bandwidth availability is a critical issue because networks have developed choke points, so it's great to see this type of project. It's a fantastic move," he said.

Traffic jams

Analysts agreed. "The carriers are facing capacity problems — not networkwide, but on key routes between major cities like New York and Chicago and New York and Boston," said Christine Heckart, director of broadband consulting at TeleChoice, Inc., a consultancy in Verona, N.J. "And the cost of continual overhauls is extremely expensive."

"We can get the bandwidth we need to transmit high-quality voice, data and video programming."

Peter Pollack,
Showtime Networks

"For a carrier to find a way to dramatically increase capacity over an existing fiber line is a big development," Heckart added. "Long term, this could result — through competition — in lower costs for users."

The project will also give MCI, which has been installing self-healing fiber rings around major cities, the extra capacity it needs to handle major network outages. "The rings aren't any good if there's nowhere for the traffic to be sent to," Heckart said.

The upgrade should also go a long way toward solving capacity problems that MCI has encountered in trying to satisfy its need for high-speed Internet access.

MCI and UUnet Technologies, Inc. re-

cently announced plans to offer users faster Internet access, but MCI found it couldn't keep up with soaring demand and was forced to turn away users.

In fact, MCI last month upgraded its Internet backbone from 45M bit/sec. to 155M bit/sec.

One of the first applications from the Hypermedia network upgrade is a service for the television broadcast industry, which NBC is testing. With the offering, affiliates

can access video content on demand from servers in the MCI network.

NBC chose the service over its satellite transmission scheme, which is the approach Pollack said Showtime uses today. Showtime said it kept its satellite approach because of the poor video quality of fiber-optic land lines.

The new technology from MCI and OCA is called Four-Wavelength Ware Division Multiplexing and allows a single fiber to ac-

commodate four light signals instead of one by beamining them at separate wavelengths, according to the documents.

The new technology will be implemented in the third quarter of this year on a network route between Washington and Richmond, Va. Other routes will follow, the documents said.

 MasterCard updates its wide-area network. See page B6.



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HP streamlines OpenView

By Patrick Dryden

This week, Hewlett-Packard Co. will introduce a simplified version of its OpenView management platform as part of a program to help administrators maintain PC workgroups that rely on HP's Unix servers.

"HP isn't challenging the LAN tool vendors. But it is seeking to fill gaps in the end-to-end coverage required by users who run key applications on HP-UX and manage networks and systems via OpenView."

"We need a uniform way to distribute software and care for about 200 departmental workgroups with mixed servers and stations," said Dana Nielsen, director of information technology at Northwestern University in Evanston, Ill. His group monitors the 20,000-user campus network with OpenView's Network Node Manager.

After beta-testing OpenView IT/Administration for Workgroups, Nielsen said that cheaper, simpler package will work well for

OpenView IT/Administration for Workgroups supports 250 nodes and performs the following functions:

■ Software distribution and hardware/software inventory for Netware, Windows NT and HP-UX servers

■ File/print and user management for Netware, HP-UX and Windows NT servers next year

wending software out to diverse LANs. And it will help local managers track users, files and inventories in workgroups that have a mixture of servers, such as Novell, Inc. Netware, Microsoft Corp. Windows NT and various Unix flavors.

Another OpenView user, who asked to remain anonymous, said he is eager to begin NetWare and Windows NT server management using the OpenView framework.

HP is trying to ease the coexistence of such PC LANs with its HP-UX systems through a new ef-

fert, the IT Collaboration Program, also has promised feature integration in areas such as security, messaging and distributed applications.

Response to IBM

This week's announcements are a defensive maneuver in response to the recent road map from IBM and Tivoli Systems, Inc. for unifying their management products from the host to the workstation, said Jon Oshik, an analyst at Forrester Research, Inc. in Cambridge, Mass.

"HP-UX and OpenView users will see this as an extension of what they have, offering more thorough capabilities at a lower level," Oshik said.

OpenView IT/Administration for Workgroups should ship in August. Prices start at \$2,600 for the management server and \$85 for each copy of the agent software that runs in servers and desktops.

Soft-Switch props net management wave. See page 58.

Vendors deliver IS-specific apps over the 'net

By Kim S. Nash and Lisa Picarille

Get ready to buy, rent and upgrade corporate software over the Internet.

Downloading applications and utilities from the global network isn't new, but information systems-specific services attached to several forthcoming programs — such as automatic reminders of when upgrades are needed — are.

Stream International, Inc., a \$1.6 billion software distributor in Westwood, Mass., is expected this week to announce three Internet programs aimed at users who want to buy and maintain business packages with points and clicks.

Stream will offer the following:

- The Internet Software Store, a Java-based World Wide Web site that lets users at large corporate sites purchase software and upgrade applications online.

- Software Store, a package large user companies can license to create internal software distribution servers for end users.

- A technical support site on the Internet, staffed by Stream's 35,000 support workers, that includes access to multiple support databases.

Rental rules

Meanwhile, Microsoft Corp., the biggest PC software maker, this week will announce terms to which resellers and distributors must adhere to offer its applications on the Internet and online services.

The vendor has devised minimum standards for payment security, customer support and "a decent customer experience," said Johan Liebgreen, director of emerging channels at Microsoft in Redmond, Wash.

"We want to be sure that anyone who is buying Microsoft products is comfortable with the services they receive and how they receive them," Liebgreen said.

Users need to be aware of another potential problem.

Over the next three to four years, 37% of the industry's independent software vendors will go out of business, according to Kevin Schick, research director of applications development technology at Gartner Group, Inc. in Stamford, Conn.

firms confirmed last week. They plan to target Ingram, Merisel and other large distributors that want to enter the electronic channel.

More than meets the eye
This new wave of online software availability goes beyond simply selling code that can be downloaded, edited and used said.

For example, the tracking of who uses what applications would be automated. Far-flung branch offices would be able to download new applications from a corporate intranet rather than receiving and installing CD-ROM upgrades.

Shipping costs could be cut if software no longer comes in a box via mail said Ken Healey, MIS director at Outside magazine in Santa Fe, N.M.

Digital delivery

Electronic shipment of corporate applications makes a host of other IS services possible:

Automatic notification of when it's time to upgrade.

Easier usage tracking.

Virtual bundles of packages that otherwise aren't sold together.

Frequent-buyer programs.

Ease of upgrade is also a big draw, Henley said. He said he would like to see applications automatically prompt end users to grab the latest version of a product from the 'net and "have their software updated before their eyes. This will be an MIS dream come true."

But electronic distribution won't erase all logistics costs.

"Most users will still have the downloads sent to them rather than downloading massive files," said Jeff Turner, editor of "Softletter," an industry newsletter in Waterbury, Mass.

Even relatively simple applications such as Netscape Communications Corp.'s 640-byte Navigator browser, can take 30 minutes or more to download.

Bigger, more complicated word processors, spreadsheets and other packages could take several hours.

Year 2000

CONTINUED FROM PAGE 1

deliver year 2000 upgrades. And that's a big problem.

Some users can breathe easier now that initial heavyweights IBM, Comshare Associates International, Inc. and Dun & Bradstreet Software have decided to make their software compliant (see timeline). But those at greatest risk are users with software from mom-and-pop shops that may lack the financial wherewithal to meet the millennium deadline.

"There's an impending feeling of dooms day" about the ability of smaller vendors to meet the deadline, said Janis Sears, vice president of IS at The Canada Life Assurance Co. in Toronto.

"Why should vendors be any different than us [user companies] is failing to appreciate the enormity of this problem and reacting to it late?" she said.

Users are taking a variety of approaches.

The Chase Manhattan Bank Corp., which uses 350 third-party applications, is having its legal department add year 2000 compliance language to all new software licenses. But there isn't much the New York-based bank has been able to do about existing licenses. "Right now, we haven't had much

Problem solvers

Vendor	Policy
IBM	All its software will be year 2000-compliant by the end of this year.

Due & Brundtstone	Mainframe software users with current maintenance contracts can migrate to its year 2000-compliant releases at no extra cost.
-------------------	-------------------------------------------------------------------------------------------------------------------------------

success" with vendors on existing contracts, but every vendor has to be compliant — "it's just a matter of when," said Joann Payne, vice president of technology, software and planning at Chase.

Ruberts Express, Inc. in Akron, Ohio, has a 1980-ish, mini-computer-based financial system "riddled with year 2000 problems," according to IS director Joe Greslitch.

But Greslitch said he never considered negotiating with the software vendor. "Our answer is to buy a new version or buy a new financial package," he said. Ruberts' IS staff already has rewritten programs that handle core business functions, such as package delivery tracking, he said.

Some companies are looking to industry user groups for answers. For example, Canada Life Assurance has talked with other mem-

bers of the Life Office Management Association about drafting a letter to major software vendors requesting compliance.

Canada Life is outlining a contingency strategy in the event some of its vendors never reach year 2000 compliance. The insurer is considering discarding some software or migrating to a some alternative client/server architecture, Sears said. "I don't want to find out in 1999 that a vendor isn't going to be compliant," she said.

Users need to be aware of another potential problem.

Over the next three to four years, 37% of the industry's independent software vendors will go out of business, according to Kevin Schick, research director of applications development technology at Gartner Group, Inc. in Stamford, Conn.

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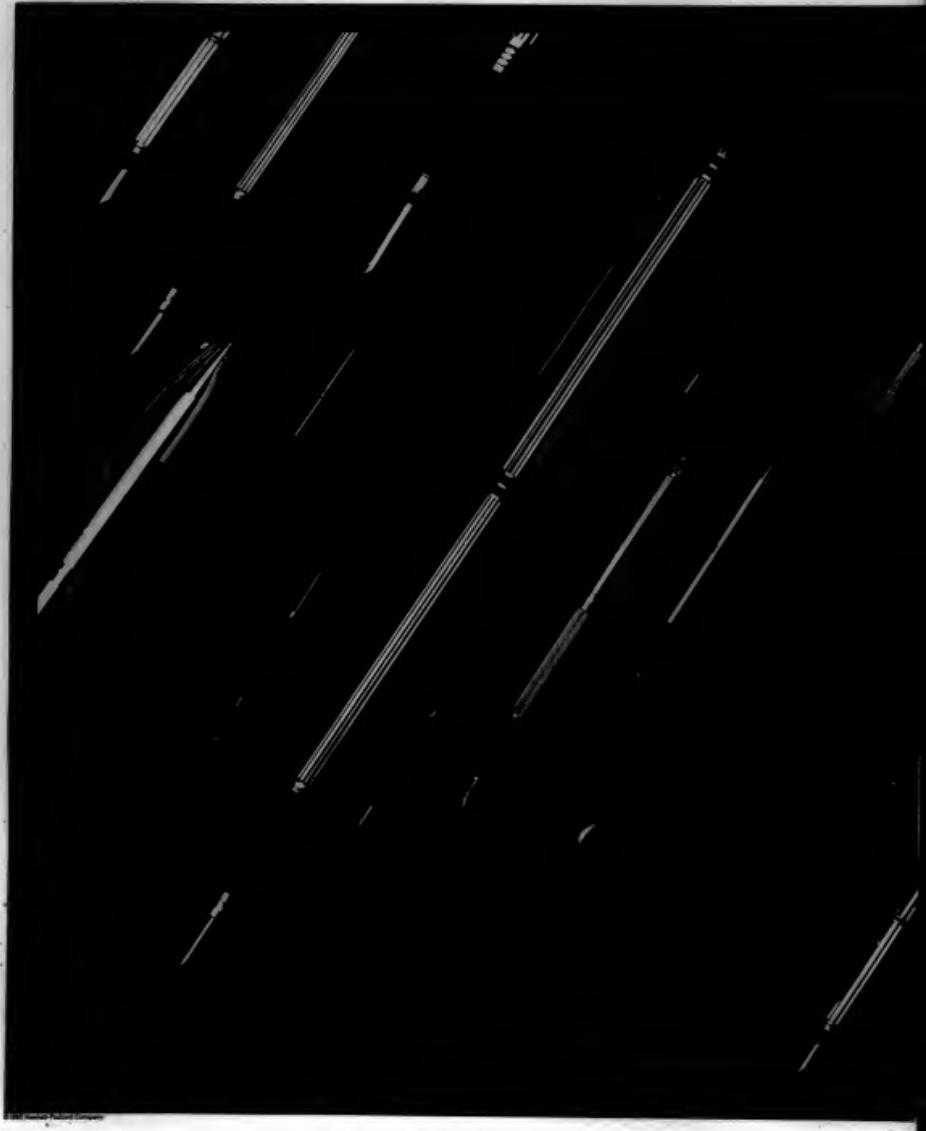
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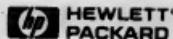
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Symantec puts Act on Notes stage

By Tim Ouellette

Lotus Notes is getting its act together with contact management applications courtesy of Symantec Corp.

Symantec this week will begin shipping Act for Notes, a Notes-native version of its

popular contact management software.

Act for Notes 4.0 lets users manage their contacts, activities and correspondence in the Notes groupware environment. It runs only under Lotus Development Corp.'s Notes 4.0 and higher, so Notes 3.x users must upgrade to use it.

Sites that have mixed Notes and Act can now meld the applications so users need only one point of access. Current Act users can import all their old data to the Act Notes databases.

"When I heard that Act for Notes was coming out, I said this was the best for both

words," said Kevin McGuire, information systems manager at Dale Carnegie Associates, Inc., a developer of training programs in Garden City, N.Y.

The firm's sales force, located in remote offices around the country, chose Act for contact management two years ago, because headquarters wanted users to run Notes for groupware and electronic mail. Now, 1,200 users are on the company's Notes network.

Taking your Act on the road

Act provides the following contact management features for some Notes-based sales force automation applications:

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Everything you need to know

But because Act for Notes runs only on Notes 4.x, McGuire said his firm, like other Macintosh users, has had to wait for the Macintosh version of Notes 4.0 before running Act across the company. Lotus just shipped Notes 4.1, an upgrade that adds support for numerous Unix platforms and the Macintosh.

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Bundled apps losing allure

By Bob Francis and Randy Weston

Corporate buyers are increasingly opting to choose from the a la carte menu when it comes to software for their PCs.

More and more, users are ordering up a customized software bundle from their

hardware suppliers instead of accepting the standard prepackaged bundle. Sometimes they simply choose to order their corporate PCs stripped of operating systems and applications so they can load their own software.

"In the business environment, it's a big

issue. Bundle [the operating system]; that's okay. But applications are a whole different thing," said Bill Kriner, department communication coordinator at U.S. West Communications Group in Seattle. The reason, Kriner says, is that he already has license deals with software vendors, and keeping

up with software prebundled on systems becomes just one more management headache.

"It is getting better. A lot of times vendors provide uninstalled programs, so you can remove them by pointing and clicking," Kriner said.

Analysts said corporate users sometimes find preloaded software to be a problem. "If they have to remove the preloaded software and then load on their own bundle, it's just more costs added to their PC," said Richard Zweckenthaler, a PC analyst at International Data Corp. in Framingham, Mass.

"Typically, we buy a lot of units that come bundled. We completely clean them out [and] add our network drivers and basic [operating system]," said Sean Gilbert, an information systems manager at CardService International, Inc., in Agoura Hills, Calif. "Everything else we run from servers because that's where we have the power to control licensing."

PC makers that sell direct to users, such as Dell Computer Corp. in Austin, Texas, and Gateway 2000, Inc. in North Sioux City, S.D., have long offered to preload operating systems and applications on customers' systems. But now even vendors that sell through resellers are picking up on the trend.

According to IBM's research, about 80% of large customers erased the programs from the hard drive once the system was shipped to them. IBM typically bundles a choice of operating systems and several utility programs with each hardware.

In response, IBM PC Co. started a program last month called Ready-to-Configure for its PC 700 line. The PC Co. ships those models with no software or with customer-specified software, said Robert Judge, director of commercial desktop programs at IBM. The company will also load custom software that the customer provides. For PCs shipped without operating system software, IBM deducts the price of the operating system, he said.

Most large PC vendors or their resellers will remove the unwanted software if requested, but IBM is the only indirect vendor to target users with a program designed for companies that want specific software package. IBM officials said they will probably expand the program.

The trend isn't likely to meet with much resistance from developers. Jeffrey Tarter, publisher of "Sofletter," an industry newsletter in Watertown, Mass., said, software companies don't see a great deal of revenue from software bundling anyway.

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Software Business Practices Survey Internet earnings soar

By Juan Carlos Perez

Internet-enabled products are fast becoming a primary source of revenue for a growing number of software vendors.

That was the key finding of this year's Software Business Practices Survey. Data for the poll was collected in January from nearly 1,000 firms. Price Waterhouse conducted the annual survey, which was sponsored by the Massachusetts Software Council, Inc., the Software Publishers Association, the Information Technology Association, the Information Technology Association of America and Price Waterhouse.

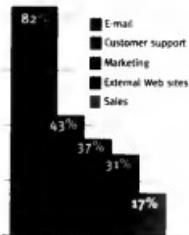
The survey found that for software companies, the Internet has become a revenue to advertising and self-products and a new market for Internet-enabled applications.

"We in this industry feel like we're storm chasers, because we have [an] Internet storm developing around us," said survey committee chairwoman Pamela Reeve, CEO of Lightbridge, Inc., in Waltham, Mass. "For the first time in the survey's six-year history, a number of respondents — 5% — said Internet-enabled products are their primary source of revenue. And 10% listed sources of 'net-enabled applications as one of their Top 5 sources of revenue.'

The poll also found that the number of companies that offer Internet-based applications will triple this year compared with last year. And 82% of surveyed firms said they use the 'net for electronic mail, 43% said they use it for customer support and 37% said they use it for marketing. Another 31% said they had a World Wide Web site.

In Chicago, for example, the number of firms that provide Internet-related software jumped from five at the end of last year to 75 today, said Ed Denison, executive director of the Chicago Software Asso-

How do you use the Internet at your business?



Source: Price Waterhouse, New York

ciation. The 'net's popularity has opened new markets in the software industry, such as Web site development, said Karen Giles, president of the Minnesota Software Association in St. Paul.

Other survey results include these:
 • Seventy percent of respondents said they posted profits last year.
 • Seventy-three percent said they plan to add jobs this year; less than 1% plan to downsize.
 • Nineteen percent raised capital, though 35% wanted to.

The survey results will be formally released Wednesday at the Mass. Software Council's spring meeting. The results also will be posted online at <http://www.softwarecouncil.org>.

Oracle combats user confusion

By Dan Richman

Oracle Corp. this summer will put one executive in charge of marketing in an attempt to reduce user confusion caused by the onslaught of company products.

Marc C. Bennett, 31, will fill the new position of senior vice president of marketing. He will report directly to Chairman and CEO Larry Ellison. He previously was senior vice president of World Wide Web and workgroup systems at Oracle.

Oracle's culture, which encourages independent groups to develop alternative or even competing products, has sent users ambiguous or conflicting messages. For example, users and Oracle's Project Objects, a long-planned development tool announced last year, seemed to compete with its Developer 2000.

"The message was completely unclear as to

when one or the other would be more appropriate to use and whether they worked together," said Dale Lowery, executive director of Oracle User Resource, a consortium of East Coast Oracle users' groups.

Putting a single executive in charge of marketing "probably gives us one door to knock on, one source for information," he said.

Oracle has released as many as 20 new products or upgrades in a year. Ten or more releases in a year is common.

It once was simple to keep up with Oracle, but "now it has so many products that poor shuns me like I can't keep up. Some oversight would be a wise move," said Mike Prince, chief information officer at Burlington Coat Factory Warehouse, Inc. in Burlington, N.J.

Oracle gets into the automotive parts business. See page 58.

COMPUTERWORLD MAY 6, 1996 (<http://www.computerworld.com>)

\$2B merger puts telecom pioneer in 'net business

By Mitch Wagner
and Randy Weston

Business telecommunications pioneer MFS Communications, Inc.'s purchase of Internet service player UUnet Technologies, Inc. may give users lower-cost access to one of the most advanced Internet backbones.

It makes a lot of sense," said information systems manager Michael Wheeler, president of the Desktop Video unit of NBC in New York. "MFS already has going into some of the office buildings in the world, and now they can put Internet down there."

Alan Tafel, vice president of sales and marketing at UUnet, agreed. He noted that 40% of UUnet's costs are for local telephone lines to take Internet signals from centralized distribution points

Communications analyst Mike Smith at Datapro, Inc. in Delran, N.J., said the merger puts MFS in the thick of the brewing battle for local telephone business. "It's a smart move on MFS' part, certainly. When looking at the prospect of competing with the Bell companies, this is a way of acquiring a customer base immediately, as well as UUnet's expertise and the services that UUnet offers."

By adding Internet service to its portfolio of local and long-distance telephone offerings, MFS is positioning itself to lure customers away from regional Bell operating companies, said Howard Hecht, a telecommunications analyst at Dreyfus, Inc. in Sterling, Va.

"[MFS] has a credible international network from access to backbone," Hecht said. "They've gotten to where the Baby Bells want to go."

Largest technology mergers

Companies	When	Amount
Cisco Systems and Stratent	April 22, 1996	\$4.8
RBB and Lotus	April 22, 1995	\$3.5B
MFS Communications and UUnet Technologies	May 1, 1996	\$2B

— known as points of presence — to customer premises.

MFS is no stranger to Internet technology. The company plays a vital role in the 'net, operating two of the central switching stations, or metropolitan area exchanges (MAE), through which most of the nation's Internet traffic is routed — MAE-East in Washington and MAE-West in San Jose, Calif.

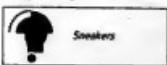
The acquisition changes MFS' status in the Internet marketplace from being a neutral party that provides services to all Internet service providers (ISP) to being one of several ISPs battling for market share.

But Tafel pointed out that several other centralized switching points are operated by ISPs, including MCI Communications Corp. and Sprint Corp.

Hecht predicted the merger would be the first of many buyouts of Internet service players. "The ISPs are not going to be stand-alone beyond 1997," he said. "They all did a great job, but they were built for low, low latency."

Wall Street investors seemed to agree. The MFS and UUnet merger announcement sent through the roof the stock prices of competing services Netcom Online Communications Services, Inc. and PStNet.

After the proposed \$2 billion stock swap is completed, the combined companies will have monthly revenue of about \$1 billion and more than 50,000 business customers in North America, Europe and Asia. UUnet's employee count of 600 is expected to increase under the new regime, Tafel said. No changes in top management at UUnet are planned, he added.



Sneakers

What do intrants and client/server have in common? Hidden costs. See page 37.



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Computer Industry

TI revamp takes hold

By Mindy Blodgett

When Steve Lair was named to head Texas Instruments, Inc.'s laptop program almost a year ago this week, he made a brush proclamation.

He said that within 36 months he would wrest the notebook market lead from his former employer, Toshiba America Information Systems, Inc. in Irvine, Calif.

His strategy for doing so relied heavily on changing TI's image as a technologically superior company out of touch with users. Lair also took aim at TI's pricing.

Today, a third of the way into the fight, Lair, TI's vice president and executive director of mobile computing products, said he is still confident he can meet his goal.

"I'd say we are right on track if not tracking ahead in our goal," Lair said. "Some said I was pretty outlandish to make the claim, but in some ways we

have actually exceeded expectations."

Industry observers said that by some standards, Lair is entitled to his confidence. According to International Data Corp. (IDC) in Framingham, Mass., Dallas-based TI saw a 214% increase in market share in the fourth quarter of last year over the same quarter in 1994. This boosted its market share from 2.7% (sixth place) to 5.9% (fifth place), according to IDC.

The overall growth in the U.S. market from 1994 to last year was 14.2%, according to IDC, which said TI led the pack.

But that wasn't enough to pull TI's notebook computer division out of the red for the fourth quarter.

"He has certainly pumped up the vol-

ume," said Kimball Brown, an analyst at Dataquest in San Jose, Calif. "But at some stage he is going to have to make or he won't be there in three years."

TI was respected for its technology and its defense contract products, but its laptop business lagged due to distribution problems and a lack of mind share. TI also needed to steer its attention closer to the corporate market, according to industry observers.

One of Lair's initial goals when he moved over to TI after leaving Toshiba, where he was a vice president of marketing, was to improve his new employer's marketing profile.

Lair won't say how much TI has spent

on that effort, but one published report said the company was expected to spend more than \$20 million last year — a sixfold increase from 1994 — to advertise its laptops. According to TI's 1995 annual report, the investment in marketing "caused the [notebook] business to operate at a loss during...the year."

Another strategy has been to price aggressively. TI and Toshiba began this year with neck-and-neck price slashing that kicked off price cuts from all the leading vendors.

Focus on users

But overall, the strategy has been to move the firm closer to the needs of the user rather than to focus exclusively on technology, Lair said. He said TI has invested heavily in product development since he had been there, focusing on ergonomics and the latest technology.

But the question remains whether TI can ultimately triumph over Toshiba and vanquish IBM PC Co. and Compaq Computer Corp., respectively ranked No. 2 with a 10.7% market share and No. 3 with a 10% market share.

"He's gottes mind share by being a very pushy guy," said Ken Dunaway, an analyst at Gartner Group, Inc. in San Jose, Calif. "But Toshiba is a very powerful leader, and Compaq is coming out with some great products. We'll just have to see."



Someone forgot to tell PC buyers

By Bob Francis

The much-hyped PC market slowdown failed to appear as predicted in the first quarter, according to market analysts.

And Compaq Computer Corp., which initiated much of the slowdown talk, did the most to put the issue to rest.

Houston-based Compaq, in fact, widened its lead as the top PC manufacturer in the U.S. during the first quarter, while its closest rivals lost market share, according to market researchers at International Data Corp. (IDC) in Framingham, Mass., and Dataquest in San Jose, Calif.

Both research groups last week issued reports that refuted worries of a slump in PC sales. Dataquest indicated that PC vendors shipped 16.1 million units in the

first quarter, 18.4% more than in the quarter last year, when 13.7 million units shipped.

The slowdown chatter reached its apex following a January announcement that Compaq didn't expect to meet first-quarter projections. That, coupled with a slowdown in chip orders and a drop in memory prices, sent some analysts scurrying to lower demand projections.

In April, however, Compaq reported earnings of \$225 million on sales of \$4.21 billion, better than many analysts projected.

And following the release of industry-wide first-quarter figures last week, analysts said any slip in chip and PC orders during the winter was the result of companies' shedding excess inventory, not an indication of long-term difficulties.

PC shipments		Q1 1996 Units Shipped	Q1 1995 Units Shipped	% Change Year-to-Year	% Change Quarter-to-Quarter
Compaq	740,000	12.9%	10.7%		
Packard Bell	610,000	10.8%	11.8%		
Hewlett-Packard	401,000	7%	3.4%		
Apple	370,000	6.5%	9.4%		
Gateway 2000	341,000	6%	5.4%		
TOTAL MARKET	5.73M	-	-		

Source: International Data Corp., Framingham, Mass.

Dataquest now predicts a PC growth rate of 19.1%, down from last year's 25.6% but still healthy. Similarly, IDC expects the domestic PC market to increase 15.3% in 1996, down from 23% last year.

"PC growth is slowing down, but we're not in any sort of a downward spiral. Other industries would love a 15.3% growth rate," said Richard Zweizbodenbaum, a PC hardware analyst at IDC.

But that doesn't mean some companies weren't buring in the first quarter. Turnoff-plagued Apple Computer, Inc. in Cupertino,

Calif., saw shipments plummet 22% and was the only manufacturer in the Top 5 to see a decline in shipments, according to IDC. "Apple needs to show some clear signs of recovery in its customers," Zweizbodenbaum said.

And IBM PC Co. in Armonk, N.Y., which was the No. 4 U.S. PC maker in the year-ago quarter, fell out of the Top 5 for the first time, according to IDC. The company was miffed with too much inventory in the distribution channel from shipments in the fourth quarter of last year, according to Zweizbodenbaum. "Their distribu-

tors simply couldn't take any more inventory," he said.

Packard Bell Electronics, Inc. in Westlake Village, Calif., which was No. 1 a year ago, slipped to No. 2, Gateway 2000, Inc. in North Sioux City, S.D., held on to No. 3, with 7% of the market.

Mounting up the PC hardware food chain is Hewlett-Packard Co. in Palo Alto, Calif., pushing its way from No. 8 to No. 3 in the first quarter of 1996.

"HP has really vaulted its way to the top with both commercial and consumer desktops," Zweizbodenbaum said.



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Viewpoint

Directory of future

Whenever gangs of vendors gather to cheerfully announce a new "open" standard, the MEGO (Many Eyes Glazing Over) factor goes right off the scale.

Yet another incomprehensible acronym to remember while we wait years for actual products? Spare us.

So naturally enough, Netscape's recent announcement of its Lightweight Directory Access Protocol (LDAP) was just another blip in the blizzard of weekly stories about the Internet. Even worse, LDAP has its roots in the stony soil of the X.500 electronic-mail directory standard — a complex, ugly place where even engineers fear to tread.

But there's actually a lot to like about LDAP, despite the geeky name and intimidating parent. This open protocol, which accesses online directory services over TCP/IP networks, promises a truly universal Internet directory in our lifetimes, no less. LDAP could become the language that E-mail directories will speak, much the same way HyperText Markup Language has become the standard for World Wide Web developers.

The protocol provides a standard way for Internet clients, applications and Web servers to access the E-mail addresses of tens of thousands of "net users."

So far, there are 40 industry big shots supporting LDAP, including AT&T, Sun, IBM/Lotus and Novell. Even Microsoft, that reluctant latecomer to the Internet party, is an LDAP believer — although Netscape didn't bother to invite the PC software behemoth to its coming-out party. Cheeky bunch, those Netscapers.

Products that use LDAP are supposed to start appearing within months, not years. Support for the protocol will show up in midyear versions of Netscape Navigator and the next wave of the company's Web servers. IBM/Lotus Notes and Microsoft Exchange and Windows NT all will support LDAP within the year. Presumably, companies blessed with a mix of hostile E-mail systems could blend them into one directory and dump those expensive, unreliable gateways.

For many corporations, this standard approach could spell massive relief from the pain of administering and coordinating multiple E-mail directories. Network administrators would be able to troubleshoot LDAP-compliant products from a central point, as well.

Imagine a world where E-mail actually gets there. It might even be worth learning another acronym.

Maryfran Johnson, Executive Editor
Internet: mjohnson@cw.com



Microsoft tactics bear watching

Your editorial on America Online chairman Steve Case in bed with Bill Gates ("AOL's sellout" [CW, March 18]) was exceptional.

I am as much dismayed by Microsoft's tactics as I am afraid of its complete influence. The working 15 community must seriously consider the long-term effects of Microsoft or any company having a lock on the entire spectrum of electronic communications. When I canceled my AOL membership, I noticed a long wait time; perhaps many others have the same sentiment.

Jeff E. Goldberg
Miami

Spin-off service

In the article, "Spin-off Doctors" [CW, April 8], Kathy White makes some really good points about the issues that information technology managers face regarding corporate spin-offs. She correctly points out that the relationship between the parent company and the new firm must be defined in advance.

My recommendation is that this be done in a definitive service agreement, not unlike one you would develop with a third-party outsourcer. The service agreement needs to cover pricing, level of support and how differences of opinion will be resolved. As IT manager should not fear this type of situation. With proper planning and well-managed execution, it can be an exciting project.

Michael T. Ahlwein
QORE Business Solutions, Inc.
Baltimore, Md.
mtahlwein@bellsouth.net

Who's fooling whom?

Let me see if I understand this correctly.

"In Desktop users left shouting for Java" [CW, April 22], you say Java developers are hitting a wall because in order to use these wonderful platform-independent applications that are going to work with anything, anywhere, anytime, more than 80% of users will have to upgrade to Windows 95 or NT. Does this make Java the proverbial killer app for Win-

dows 95? Sun gives away Java. Microsoft sells Windows 95 and NT. Mom-and-pop mutual fund groups are buying Internet stock in companies that don't sell anything to users who relate to Java for anything they download. And the demise of Microsoft is imminent. Who's that I hear laughing all the way to the bank?

Gilbert Bellisle
75262_2022@compuserve.com
Toronto

Get stats straight

I don't know if it is The Standish Group study or Computerworld's report of it, but the statistics quoted in "Some role model?" [CW, March 11] look extremely dubious.

Supposedly, the findings were that 16% of private-sector systems development projects "were completed on time, within budget and with all the features originally planned," whereas 53% "were completed late, over budget and with limited functionality" and 31% were canceled before completion. Since 16 plus 53 plus 31 equals 100, all 8,830 projects supposedly fall into one of these three categories.

No projects were completed late and with all the features originally planned. Nor were any projects completed on time with limited functionality. Back to Statistics 100 for your reporter. Maybe The Standish Group needs a refresher course, too.

Laura M. Freeman
InfoWeek Software, Inc.
Portland, Ore.

Blues you can use

Bravo for your article, "Import/export blues hit users" by Esther Schindler [CW, April 11]. A reminder of the kind of problem that drives real-life users mad every day is always timely, especially on April Fool's Day. We all can benefit by remembering such issues — whether we are user, vendor or other industry participant. Similar reviews focused on specific, frequently necessary tasks would make a welcome regular Computerworld feature.

Michael Dentch
UTG, Inc.
San Francisco

More letters, page 40

Computerworld welcomes comments from its readers. Letters should not exceed 1,000 words and should be addressed to Paul Gillin, Editor, Computerworld, PO Box 9171, 100 Old Connecticut Path, Framingham, Mass. 01702. Fax number: (508) 875-0931. Internet: letters@cyber.com. Please include an address and phone number for verification.

Joseph Maglitta

Dying to make technology work for all

Sometimes our technology projects seem like matters of life and death. But take a moment to meet some people for whom that is literally true.

Lisa Valanti never thought she would give her life for some decade-old IBM PCs. Yet since Feb. 12, she and three others have fasted to win release of 425 PCs seized by U.S. Customs Service agents.

The church-donated PCs are needed to finish a medical information system for neighborhoods in rural Cuba, says Valanti, a 47-year-old activist from Pittsburgh.

Early this year, Pastors for Peace, a Minnesota-based religious group, organized a caravan of 15 trucks and 400 volunteers to deliver the computers and medical supplies to Cuban churches.

But on Jan. 31, federal agents stopped the caravan at the Mexican border, confiscated the PCs and arrested 12 people for allegedly violating the trade embargo against Cuba. "By no stretch of the imagination are computers humanitarian aid," a U.S. government spokesman says. So the computers sit in a San Ysidro, Calif., warehouse.

Valanti and those fasting with her — a 67-year-old Baptist minister, a 37-year-old psychologist and a 33-year-old social worker — spend their days lobbying Congress and bureaucrats. They live on water mixed with lemon juice and a bit of maple syrup. Each has lost more than 35 pounds. They rest in wheelchairs and sleep in a plastic

tent in the shadow of the U.S. Capitol.

"What is stupider?" Valanti asks. "What I'm doing or what our government is doing? I don't want to die for some obsolete machine that would otherwise end up in a landfill. But I will."

Regardless of your politics, it's difficult to not be moved by the depth of the fastest conviction that technology could and should be used to make the world a better place. Yet most of us are too caught up in ship dates, problems and deadlines to think much about the awesome impact of our collective work on our communities, our nation, our world and our families. We're too busy to look much beyond our own screens. A kind of karmic logic suggests we should.

If we help create a class of technology have-nots, isn't it our responsibility to bring technology to people who need it but can't afford it? If we help create systems that displace jobs, why



These people are willing to die to free 425 obsolete PCs for a Cuban medical information system. How far would you go?

wouldn't we help train the displaced and welcome them back in new roles?

I know such talk seems out of fashion. Today's economic Darwinists would have everyone boot themselves up by their own bootstraps. Selfish is in. But what parent would labor to give birth to a child, only to ignore what the world did to it and let it to the world?

What if every technology company donated 1% of its profit to computer projects aimed at making the world a better place? What if every information systems department, with the same goal, gave 1% of its budget or time to teach, tutor, build, install and repair systems?

People outside the industry are willing to die for that cause. What are we willing to do?

Maglitta is a Computerworld senior editor who believes good business includes good deeds. His Internet address is joe_maglitta@cw.com.

We're too busy
to look up from
our screens
to help the
technology
have-nots.



Intranets: A thicket of hidden costs

On the face of it, an intranet looks like a great, low-priced substitute for Lotus Notes or other database applications. Each of the pieces — the browsers and the server software and hardware — seems so much cheaper.

But there was a time when client/server computing looked cheaper than mainframe computing, too. Only after users gained some real-world experience did we learn that the life-cycle costs of client/server applications could be double the cost of mainframes. We also discovered that for some applications, client/server could be a very bad idea indeed.

Intranets will be like that. For the next year or two, intranets will be the rage; our usually conservative forecasts call for a major blowout in intranet servers, for example. Meanwhile, user companies will be uneasuring the intranet's hidden costs, dollar by dollar. The following are the top candidates:

- **Multiple browser support.** Think you'll be able to standardize on a single browser at the client end? Sure you will — just as you did with PC operating systems, graphical user interfaces and communications software.

- **Hardware upgrades.** You need them for Notes, but you'll

need them for intranets, too. Forget the \$500 intranet terminal for now — at least until you see it in operation. Remember that the cost of a hardware upgrade is 2% for the hardware and 98% for employee downtime, business disruption and administrative cost overruns.

- **Application development.** Think webmasters grow on trees or are cheaper than Notes programmers? Nah.

- **Re-engineering.** With Notes and other propware products, there's a base of experience in re-engineering business processes to take advantage of the technology. But getting the right data feeding into the intranet server is a new discipline.

- **Management.** There are few automated tools for capacity planning, systems management and monitoring. Administration of remote server sites will be tough. Then there's security. By the time you pack your intranet in firewalls and put even minimum-security controls at the client end, you'll have a bad case of sticker shock.

- **Integration with legacy systems.** This is always costly until the legacy systems vendors themselves co-opt the new movement. That tends to drive up the cost of "open" systems to proprietary system levels anyway. Find out how that works.

- **Screwsups and restarts.** Think you'll get it right the first time? It'll be easy to build intranets for tasks for which they aren't really suited. What works well for information publishing may be miserable for collaboration. A system that's good for occasional file downloads may be terrible for high-speed database input from remote locations.

These are the hidden costs of uninformed — the same hidden costs early users of minicomputers, LANs and client/server systems faced.

But there is a final hidden cost — the cost of not deploying intranets at all. It can take a while for companies to figure out how to exploit a new technology. But once they do, the returns can be dramatic for the early-adopter companies that beat their competition.

Intranets will be like that. You'll wrestle with them and fight holy wars about their place in your organization. You'll spend four times as much money and take twice as long as you expected to get them running. You'll train webmasters who will leave for other companies. You'll endure ridicule from resistant end users who have unrealistic expectations and zero tolerance for training.

And one day you'll look around and find that intranets are running the company. Users will be relying on them like the ATM on Saturday night.

Gantz is a senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcsearch.com.

Intranets
just seem
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Quadrapile
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and double
your schedule.

Consider the costs
of webmasters,
security and
integration with
legacy systems.

1973

How do you think
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views IS managers?



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You're too busy dealing with that patchwork of an infrastructure you inherited. With its daily crises. Its incomprehensible customizations. And the constant search for band-aids that will, at the very least, keep it up and running.

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LETTERS TO THE EDITOR

Hard choices

I am replying to the article "DEC boxes score with users" [CW, April 22] and specifically to the following extract: "For instance, a top-of-the-line AlphaServer 8400

can support 12 350-MHz Alpha chips, 14G bytes of Very Large Memory, 39T bytes of storage, 144 individual-standard Peripheral Component Interconnect expansion slots." This states that I can have all these wonderful things at the same time with one AlphaServer 8400.

Trade-offs have to be made in deciding how the nine valuable system slots can be used.

For instance, you could have 12 proces-

sors with 4G bytes of memory and one I/O module. Or you could have the full 14G bytes of memory, but then you get only two processors and one I/O module.

I can't even speculate what you need to do to arrive at 39T bytes of disk storage, and I invite Digital to educate me here.

*Derek Gardner
Product marketing
Cray Research, Inc.
San Diego*

This single person also has a life, thank you

Stress has gotten a lot of focus recently ("Stressed," CW, April 15) in all the magazine media.

But it seems that the only way people feel it is OK to have a life is if it is a "family life."

There are a lot of us out here who resent the view that if a person is single, they won't mind working weekends.

I draw, paint, read, write, go to museums and hunt antiques over the weekend and at night.

It is just as important for me to get home. A life is important; your own life.

*Jodi Waggoner
75452-3026@compuserve.com
Seascape, NJ*

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*Carrie Gajewski
Senior Director
Marketing/Communications Services
The Martha Felt Group*

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**Programmers:
There's no room at the Inc.**

I have seen many stories about re-training for new technology ("Something's got to give," CW, April 11).

Whatever the skill may be, it's very difficult for a mid-career programmer to find a company that is willing to invest in him, even though he's enthusiastic about learning new skills.

Companies are not willing to train because they have no interest in long-term employees.

In addition, there is increased competition from overseas. U.S. firms are selling off their software.

I hope these companies will wake up and realize that they are only as good as the people who work for them.

*Rick Cole
Mass., Ariz.*

I have recently graduated from a well regarded computer technical school in New Jersey.

I have worked part-time with PC Labs and have done some C/C++ programming for a small consulting company.

After sending out many resumes and attending a few interviews, my experience trying to enter this field as a programmer has been very disappointing and frustrating.

It seems to me that companies are willing to hire only highly experienced professionals at whom they can throw a \$40,000 to \$50,000 salary, put in a carafe and have hang out code without needing to invest any time or training in the person.

*Gary J. Barnes
Princeton Park, N.J.
732/622-2553/barnes@compuserve.com*

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Servers & PCs

Notebook prices dropping

Competition and inventory reduction keep discount trend alive

By Mindy Blodgett

The notebook price discounting that began shortly into the new year continued this spring.

The latest price cuts came as some laptop providers cleaned house and cut the price of older models to make way for notebooks with faster 133-MHz Pentium chips from Intel Corp. But some of the discounting was caused by a competitive market that is growing hotter, some industry observers said.

"There is definitely a bit of a price war going on as Intel pushes the notebook makers in the direction of the 133-MHz chip," said John Dunkle, an analyst at Workgroup Strategic Services Inc. in Portsmouth, N.H. "But we are also seeing a very volatile market."

Users said that while they were pleased to see prices drop, they buy when the need arises, not when low prices dictate a shopping spree.

"The prices change so often nowadays," said Bart

Everett, a deputy systems administrator at the Los Angeles

Times. "We just can't pay that much attention to the market until we are ready to buy something. Then we are driven by demand. When something wears out, we have to replace it, and then we'll look at what is available through the distributor."

Product rollout

The following vendors slashed their prices:

- NEC Technologies, Inc. in Mountain View, Calif., cut prices by as much as 12% on its top-end Versa 4000 line. The Versa 4000H with a 133-MHz processor was reduced from \$4,999 to \$4,399. NEC slashed prices at the low-end as well, reducing its Versa 4000D with a 75-MHz chip from \$2,799 to \$2,499. NEC also will announce models with 133-MHz chips and hard drives of up to 3G bytes.

- Hewlett-Packard Co. in Palo Alto, Calif., cut its OmniBook 5000 price by 15% to \$5,420 for a unit with a 133-MHz chip. HP will unveil a 133-MHz notebook this month.

- Zenith Data Systems in Buffalo Grove, Ill., cut prices on its Z-Note MX portables by as much as 16%. The 75-MHz Z-Note MX notebook is now \$3,099, down from \$3,699. Zenith also announced new models with 100-

MHz chips that cost \$2,799 to \$3,599.

- Compaq Computer Corp. in Houston expanded its LTE 5000 line. The LTE 5200 with a 133-MHz chip, an 11.3-in. screen and 16M bytes of RAM costs \$5,399. The LTE 5300 has a 133-MHz chip, 12.1-in. thin film transistor screen and 16M bytes of RAM for \$5,999.

- Acer America Corp. in San Jose, Calif., also introduced a new line. The AcerNote Light will have 100-MHz and 133-MHz chips and weigh in at 5.8 pounds. Prices range from \$1,999 to \$2,499.

- Gateway 2000, Inc. in North Sioux City, S.D., announced new multimedia PCs. The Solo line will feature 100-MHz and 133-MHz chips and an 11.3-in. Super VGA thin film transistor screen. They start at \$2,899.

DEC's Win NT gang grabs for Unix turf

By Jakumari Vijayan

Digital Equipment Corp. is accelerating its effort to push Microsoft Corp.'s Windows NT deeper into the traditional Unix workstation markets.

The company last week announced two high-end additions to its Digital XL Personal Workstation family — the Alpha XL 300 and 360 — based on its RISC-based 300-MHz and 360-MHz Alpha chips.

Workstations in the XL family are the industry's only Windows NT platforms that support Intel Corp. and RISC processors. These users can start with a 100-MHz Pentium-based system and upgrade to a 360-MHz Alpha-based system.

Digital also said it will introduce its PowerStations family of graphics accelerators across its entire XL workstation line. The PowerStations accelerators support Windows NT and Unix environments, thereby providing a common environment for application development, observers said.

Users said they are optimistic the new workstations pack the power needed to run large Windows NT applications.

It's an important announcement for workstation users who seek to migrate away from multi-tiered Unix environments to a more open Windows NT environment, said Tony Iann, an analyst at D. H. Digital, page 49

Digital's dual

Digital's latest workstation addition includes the Alpha XL 300 and Alpha XL 360.

Processor
300-MHz Alpha 2126 (Alpha XL 300); 360-MHz Alpha 2126 (Alpha XL 360)

Memory
Up to 128M bytes
16M bytes
8M bytes

Storage
Up to 12G bytes
1G bytes
500M bytes

Graphics
360-MHz (Alpha XL 360);
50-MHz (Alpha XL 300)

Today's DRAM, tomorrow's memory

By Bob Francis

New memory technologies will soon join current fast page memory (FFPM) and extended data output (EDO) dynamic RAM. How soon this will occur is still open to question.

New PC systems — some announced, others just around the corner — will include new synchronous dynamic random access memory (SDRAM) that includes the following features:

PC memory technology

memory modules, replacing current 72-pin single in-line memory modules (SIMMs).

• Run at 3.3V rather than 5V,

which speeds memory func-

tions and uses less power.

The shift to SDRAM is taking place as the price of previous memory recover from a free fall last year, when prices dropped as much as 50%.

Current prices are about \$75 for 4M-byte SIMMs. But industry officials and analysts said SDRAM prices won't be out of

line with current prices.

"You won't see prices get too high, but this transition could get stalled," said Greg MacDonald, vice president of marketing at Kingston Technologies Corp. in Folsom Valley, Calif.

The present array of memory options can prove bewildering for users. They can choose from DRAM, FFPM DRAM, EDO DRAM and burst EDO DRAM. And that's just on the desktop. Many portable systems have their own specialized memory modules, and servers

Memory, page 49

• Son's Ultra boost the company's market share.
See page 49.

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Oracle CFO & Executive VP

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Gerald J. Covino
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CORE BUSINESS APPLICATIONS ON THE 64-BIT ALPHASERVER 8400.

digital

Techno-Trivia

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This Week's TechnoTrivia™ Questions

Find the answers in this issue of Computerworld

1. "Spamming" on the Internet derives its name from what source?
 2. According to *Scientific American*, how many times faster will tomorrow's protein-based computers be than today's silicon-based computers?
 3. In what movie did Robert Redford lead a team of reformed computer hackers?
 4. What does BIOS stand for?
 5. The Intel 8080 came out in what year?

Sun quick to cut 64-bit Ultra prices

By Craig Stedman

Less than six months after it shipped its first 64-bit workstations, Sun Microsystems, Inc., is already turning on the blue light special sign.

Sun in late April slashed prices on its Ultra models to stay on the cutting edge of workstation price/performance.

The price of the midrange Ultra 1 Model 140 was cut by 30% to under \$10,000, while the price of a high-end multiprocessor was reduced even though it hasn't become available yet.

Several new models also were added to round out the top of the Ultra line, which was introduced last November.

Industry analysts said the UltraSPARC-based machines have been strong sellers for Sun. But rivals such as Digital Equipment Corp. and Silicon Graphics, Inc. this year have launched new machines that pose competitive threats at the midrange and high-end levels.

Workstations

Users welcomed Sun's quick draw-on pricing.

Steve Grandi, manager of central computer systems at the National Optical Astronomical Laboratories in Tucson, Ariz., said the lower cost of the Model 140 should prompt the labs to pick up the pace at which they are switching from older SPARC stations to the Ultras. Grandi has bought a few 140s so far and is waiting to get one of the Ultra 2 Model 2200 multiprocessors, which are scheduled to ship this quarter.

But one potential roadblock to a whole migration is the need to also switch to the new Solaris 2.5 operating system, Grandi said.

Most of the lab's 150 workstations still run Sun's older Solaris software, and changing to Solaris 2.5 is no small upgrade. "You have to keep your eyes open when you do that," he said.

Cutting competition

The speed at which Sun cut the Ultra pricing might seem fast, but

the workstation market is a ferociously competitive environment right now, and the vendors are willing to sharpen their pencils if they can hang on, said David Pensak, a senior research fellow at DuPont Co. in Wilmington, Del. "I have sympathy for those guys — but not too much."

Pensak is about to order one of Sun's Model 2200s for use as a server in DuPont's computer sciences research group. Besides the lower cost of the model, announced last fall, he said he was glad to see Sun reduce the memory requirement from 256M bytes to 64M bytes — a move that dropped the starting price from about \$60,000 to \$37,495. DuPont needs the full 256M bytes, but

Reducing costs on Sun's UltraSPARC-based workstations

Model	CPU SPEED	GLB PRICE	NEW PRICE
Ultra 1 Model 140	143 MHz	\$16,495	\$9,995
Ultra 1 Model 170	167 MHz	\$22,995	\$19,995
Ultra 1 Creator Model 170E	167 MHz	\$25,995	\$22,995
Ultra 2 Model 2200 Creator 30*	200 MHz	\$59,995	\$52,495

*Dual processor system

Pensak said he can save even more money by buying the extra memory and disks from third parties.

Aggressive move

Sun's new pricing is "extremely aggressive," according to the Model 140, said Tom Copeland, an analyst at International Data Corp. in Framingham, Mass.

The closest midrange model that offers comparable performance is a Digital AlphaStation

that starts at \$11,995, he said.

Sun's workstation market share increased slightly last year, thanks largely to the Ultras, Copeland said.

"You don't typically see [price cuts] this close to the original announcement, but I don't see any desperation," he said.

However, the Ultras "are no longer so far up the totem pole" on performance after the recent Digital and SGI rollouts, Copeland added.

Only a memory

New memory configurations available for PCs

Status	USES/HOME	GRADE/IN
Post-page memory (SDRAM)	In most current systems	32-bit applications
EDO DRAM	In most high-performance systems	16-bit and 32-bit applications
SDRAM	Just hitting the market	32-bit multimedia applications

Businesses: Multimedia and high-performance applications.
Systems needs outpace the technology.
In short supply. Some standards issues.

Memory technology moving to SDRAM

CONTINUED FROM PAGE 45

tend to often use error correcting and checking EDO RAM.

"When I look at some of the choices of what's out there, it could be a real headache if you don't know what you're looking for," said Erik Goldfeld. He is manager of information systems at the enterprises for Disease Control in Atlanta.

Coming in June

Most of the new systems that will be announced with Intel Corp.'s 200-MHz Pentium processor in June will include SDRAM. SDRAM uses an internal clock to synchronize signal input and output on the memory chip, which keeps the processor and the

memory in "sync." That saves time in executing commands and transmitting data.

Only Dell Computer Corp. in Austin, Texas, and Toshiba America Information Systems, Inc. in Irvine, Calif., are shipping systems with SDRAM.

IBM PC Co., Compaq Computer Corp. and Gateway 2000, Inc. plan to add systems with SDRAM soon. And by the fourth quarter, most high-powered PCs will include the new kind of memory, MacDonald said.

Faster graphics

SDRAM will move more late this year, as Intel adds multimedia aspects to its PC's via its multimedia extension and its accelerated graphics port (AGP) platforms.

The recently announced AGP opens a 32-bit data path between a graphics card and the PCI or ISA controller. That allows direct access to system memory necessary for three-dimensional graphics rendering. Most graphics cards and chips use their own memory, which slows overall system performance.

According to Mike Fribus, an analyst at Mercury Research in Scottsdale, Ariz., those systems will require at least 16M bytes of DRAM.

"When you're accessing memory directly for 3-D, you'd need at least that much for adequate performance," Fribus said. SDRAM will increase the graphics processing speed even more on those AGP systems, he said.

Digital pits NT against Unix

CONTINUED FROM PAGE 45

Brown and Associates in Port Chester, N.Y.

David Kraushter, manager of information systems at Parker Hannifin Corp. in Rohrert Park, Calif., said he welcomed the latest additions to Digital's XL lineup. The speedy Alpha workstations are needed because most PC servers today lack the horsepower to run large Windows NT applications, he said.

"If you are trying to run a database application in an [NT-based] PC server environment, you quickly run out of juice. You really need something faster," he said.

Niche markets

Digital officials last week said that initially, at least, the company expects the new workstations to be popular in the computer-aided design, mechanical design, engineering, scientific and education markets.

"It is a really cost-effective platform for us. It complements our existing Macintosh platform wonderfully," said Richard Navia, director of the Image & Communications Project at Brooklyn College in New York. The college uses an XL system to teach computer animation courses.

Digital's latest systems come

with several performance-enhancing features, such as a large 128-bit memory bus, a 32-bit Peripheral Component Interconnect 1/O bus and Fast SCSI drives.

Prices start at \$16,495 for an Alpha XL 300 with 32M bytes of memory and 1G byte of hard disk space. The system will be available immediately. An Alpha XL 350 with the same configuration will start at \$19,995. It will ship late this month. Digital officials said, Prices don't include monitors.

Brief

Amdahl to couple 32 mainframes

Amdahl Corp. this summer will offer a CMOS-based Millennium Coupling Server to link up to 32 mainframes in a shared-storage Parallel Sysplex environment. Along with the coupling server, Amdahl, based in Sunnyvale, Calif., next year plans to open an Enterprise Computing Center to demonstrate and test Parallel Sysplex configurations.



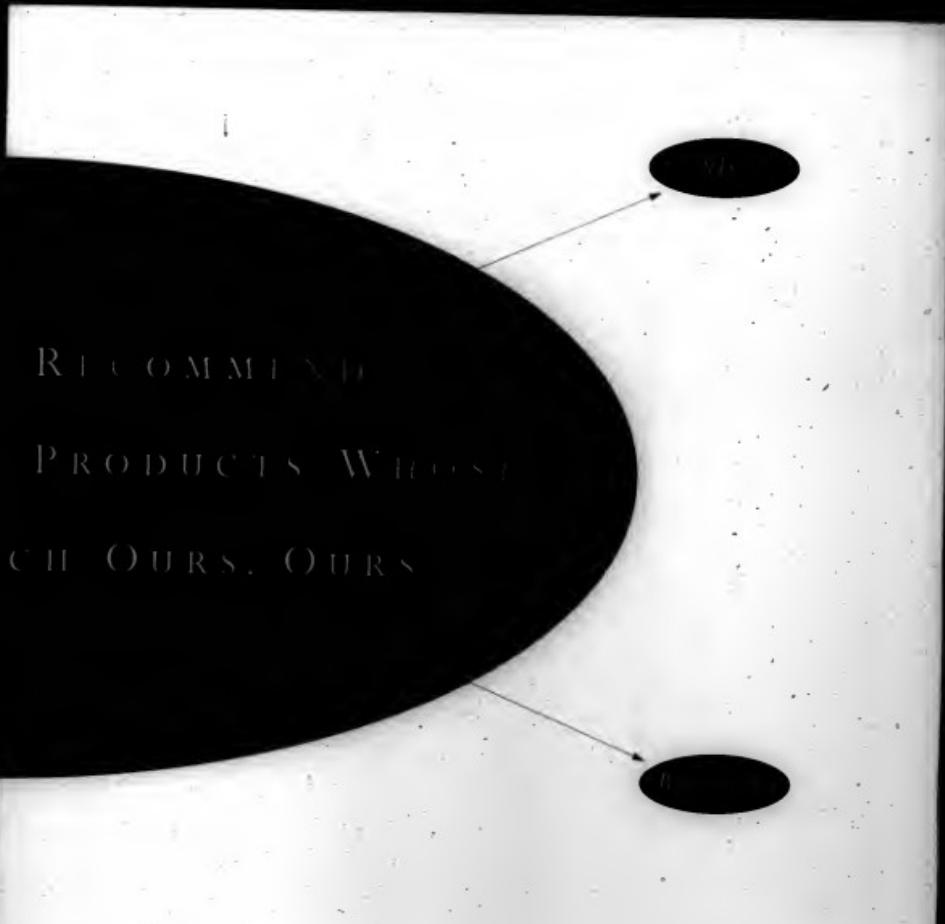
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Has It Changed Your Life Yet?

Servers & PCs

HP resellers will assemble systems

By Ron Condon

Hewlett-Packard Co. plans to speed up delivery of its PCs by appointing systems integrators to do final assembly.

The resellers could soon be handling 30% of HP's total professional desktop PC business, according to Emilio Ghilardi, recently appointed marketing manager at the Corporate PC Division of the company.

"We are winning a lot of big PC contracts, but the dealers tell us we are missing out on follow-up business because we cannot deliver fast enough," Ghilardi said. The company currently takes about four weeks to deliver products to resellers.

The way to streamline delivery, Ghilardi said, is to appoint a series of resellers who are capable of putting together systems according to customer requirements within a short period of time.

The integrators will have access to a local inventory of basic systems plus parts that HP will own and replenish.

"We do not expect the franchise [reseller] to carry the cost of the inventory," Ghilardi explained. "The industry has still not learned to play the inventory game. The deal is not to staff the channel but to integrate the channel."

The appointed resellers will have access to HP's SAP AG inventory system and will link into it on a daily basis to record deliveries and sales. To ensure quality, they must have International Standards Organization 9000 quality registration, Ghilardi said. This will limit the number of resellers.

"I expect to have about 10 resellers franchised in Europe, but they could account for around 30% of business," Ghilardi said.

"The model is workable in the corporate PC market, because resellers normally

open 80% of the boxes anyway."

The move comes as part of a redesign of the company's supply chain management, which Ghilardi said can help to give HP the edge it needs.

HP will continue to climb the technology hill, he said, continually adding new fea-

tures at no extra cost. But Ghilardi said he believes service to customers—and equally important, return on capital invested—can be noticeably improved by changing the supply chain.

The company has been trying out the franchise idea in the U.K. with one reseller

for the past year.

"We found we have been able to keep lower inventories while fulfilling 96% to 97% of orders," Ghilardi said.

Condon is a London correspondent for the IDG News Service.

Brief

IBM boosts attack on SCSI

IBM expanded the capability for its Unix server disk subsystem based on the Serial Storage Architecture (SSA), a high-speed interface trying to replace industry-standard SCSI technology. The technology contained in a server adapter card will allow users of 7135 disk arrays to connect up to eight 35/6000 servers to shared storage up to 3.57 bytes. The adapter card costs \$2,000 per server and gives access to stored data at a rate of approximately 35M bytes/sec. for each card installed, according to IBM. The technology also works with the 7131 MultiStorage Tower Model 405, and IBM plans later this year to bring SSA to RAID-5 storage arrays and to servers running on Windows NT and non-IBM Unix servers, said Alan Petersburg, a product manager at IBM Open Systems Storage in San Jose, Calif.



Servers & PCs

New Products

Boffin Ltd. has rolled out the JB321 and JB749 CD-ROM jukebox towers.

According to the Burnsville, Minn., company, the JB321 is a 21-disc jukebox with three CD-ROM readers. The JB749 is a 49-disc jukebox with seven readers. Each jukebox has a SCSI-2 port for connection to

a host system. The number of jukeboxes connected to a server is limited only by the number of controllers that can be installed in the server.

The JB321 includes software for MS-DOS, Windows 3.1 and Windows NT systems with a drive-letter available for assignment to each of the 21 CD-ROMs. The JB749 requires network management software for NetWare and Windows NT that lets CD-ROM drives appear as subdirec-

tories of a single drive letter.

Pricing for the JB321 starts at \$1,699. The JB749 starts at \$3,499. More information is available through Boffin's home page at <http://boffin.com>.

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612/894-0595

Adaptive Information Systems, Inc. has introduced the AdaptaStar family of storage management systems for distributed cl-

ient/server applications.

According to the Mission Viejo, Calif., company, the AdaptaStar family combines an optical jukebox subsystem, a RAID subsystem and automated hierarchical storage management (HSM) software into one system.

The jukebox features a maximum capacity of 501G bytes and supports standard 5½-in. magneto-optical drives. It supports most popular operating systems, including Sun Microsystems' IRIX, Solaris, Hewlett-Packard Co.'s HP-UX, Novell, Inc.'s NetWare and Microsoft Corp.'s Windows NT.

The RAID subsystem features large-capacity 3½-in. disk drives and nonvolatile cache memory of up to 256M bytes to support a variety of configurations. Each model can simultaneously support multiple operating systems. The HSM software provides transparent file migration and direct access to optical and tape libraries.

Pricing for an AdaptaStar system starts at \$46,300.

► **Adaptive Information Systems**
(714) 587-9077

Ideal Scanners & Systems, Inc. has introduced DSP3 Series Scanners, a series of high-resolution, large-format scanners.

According to the Rockville, Md., company, the new scanners use multiple cameras with the 8000 element, a high-resolution tool that helps reduce scanning time. All models include a 32-bit controller.

The DSP3 series includes auto-load, auto-scan, auto-width and auto-length features. It supports DOS, Windows and Unix environments. Pricing starts at \$15,900. More information is available on Ideal's home page at <http://www.ideal.com>.

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Olympus Image Systems, Inc. has introduced Olympus CD-R2, an internal CD-Recordable drive.

According to the Melville, N.Y., company, Olympus CD-R2 is a double-speed, multi-session CD-Recordable drive that was designed for audio recording, archiving and multimedia development.

Olympus CD-R2 includes CD mastering software, one 74-min. blank CD, mounting hardware and a caddy. It supports popular formats including CD-ROM, CD-ROM mixed mode, CD-Plus Enhanced CD and Photo CD. It conforms with recording standards including Disc-at-Once, Track-at-Once, Fixed and Variable Packet.

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Software

Old, new viruses swarm PC users

By Gary H. Antes

If you have 1,000 PCs in your organization, you can expect to get hit by a computer virus about 120 times this year.

So says the National Computer Security Association (NCSA) in its "1996 Computer Virus Prevalence Survey." According to the poll of 300 midsize and large companies and government agencies, the chances of encountering a virus today is about one in 100 PCs per month, about five to 10 times higher than early last year.

Occurrences of older viruses such as Form and Stealth have increased, but the most dramatic rise is for the Word.concept virus, a so-called "macro virus" that was unknown just a year ago. It infected 39% of the sites surveyed and was responsible for half of all virus encounters.

Word.concept rides in documents created by Microsoft Corp.'s Word. Unlike other viruses, which typically load when a user boots from an infected floppy disk, Word.concept macro code can travel as electronic mail. It can infect a PC when the document is opened.

"There is no question the No. 1 [virus] threat today is from macro viruses," said a security manager at a Fortune 100 company. He said his company had set up a very strong, centralized computer incident response office where users can go for help. That's lacking at many companies, he said.



In the survey, which was sponsored by Cheyenne Software, Inc. in Roslyn Heights, N.Y., 97% of companies polled said they use antivirus software.

"Most companies say they own antivirus software for most of their machines," Tippett said. "But what this boils down to is, people aren't using it."

Continuous scan

Another problem, Tippett said, is that often a PC is scanned for viruses only when it is booted, which allows it to become infected and pass along a virus to other machines between scans.

He said users should employ continuously running antivirus software, particularly to catch the new macro viruses.

The Alabama Department of Revenue, which doesn't use Word, is seeing virus incidents at the rate of just four per year on its 1,500 PCs. It uses a continu-

Ecosystem
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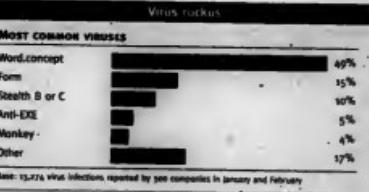
Tools vendors offer their support to NT

By Bob Francis

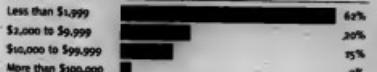
The Windows NT shopping aisle marked "systems management tools" is looking more full-stocked.

Several vendors that have traditionally focused on Unix systems are turning their tools to Microsoft Corp.'s Windows NT environment. Customers will be able to use tools with which they are already familiar for NT.

Systems management vendors, including Platinum Technology, Inc. in Oakbrook Terrace, Ill., Twotti Systems, Inc. (now part of IBM) in Austin, Texas, and Boole & Babbage, Inc. in San Jose, Calif., have announced support tools for Windows NT support, page 64



Cost of virus incident



Basis: 300 companies reporting on latest virus incident

Sources: National Computer Security Association, Carlisle, Pa.

ously running scanner on most of its OS/2 and Windows machines, said Jim Schultz, manager of computer security.

Tippett said users should put antivirus software on servers and client machines. Most older viruses couldn't

reach a server unless it was booted from an infected floppy disk, so running antivirus software on the server had little value. Now that viruses can easily reach servers via transmitted documents, users should protect them as well, he said.

Scaling is no problem for NT Server upgrade

By Laura DiDio

To the relief of some users, the current version of Microsoft Corp.'s Windows NT Server 3.1 has slain the scalability demons that plagued prior releases of the network operating system.

Mike Nash, group product manager for Windows NT Server, acknowledged that Windows NT Server 3.1 had difficulty scaling

beyond four processors in 1993. Anything beyond that degraded performance significantly.

That was the experience of one administrator at an insurance firm in the Midwest, who requested anonymity. "It was the typical ear-ly adopter's nightmare: We wanted a powerhouse [network operating system] to process claims from our insured customers nationwide. And when we tried to

NT Server, page 58

you're going to

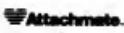




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Microsoft

WHERE DO YOU WANT TO GO TODAY?

Oracle, Radley will merge wares

By Juan Carlos Perez

Vehicle parts manufacturers will have a new software supplier by year's end: Oracle Corp.

Oracle is merging its manufacturing applications with products from specialty software supplier Radley Corp. in Southfield, Mich. Radley makes the Computerized Automotive Release Accounting System (CARAS), inventory software that tracks how many parts have been manufactured.

CARAS also includes electronic data interchange (EDI) interfaces tailored to parts manufacturers that communicate with their customers via EDI.

Radley's package also helps to ensure that automotive parts are delivered to customers and unloaded in the correct order.

There has never been a formal integration between a specialty supplier such as Radley and a major vendor such as Oracle in the EDI revenue accounting arena, said James Shepherd, vice president of research at Advanced Manufacturing Research, Inc., a consultancy in Boston.

By acquiring a minority posi-

tion in Radley, Oracle is clearly saying it intends to become a lead supplier in the automotive industry, Shepherd said. "It makes customers feel a lot safer" to have a brand-name supplier such as Oracle in the market, he said.

The Center for Advanced Technologies of Focus Hope, a non-profit group based in Detroit, Mich., is anxiously awaiting the

inventory system. Once an order is received, the system will automatically let plant employees know what materials they will need to complete the job.

The system also will order the materials and send advance shipping notice to their customers to let them know when the job will be complete.

Radley and Oracle plan to fully merge theirwares in two steps. Before the end of the year, Radley's CARAS software will link to Oracle's manufacturing application suite. Oracle plans to release a manufacturing application next year that includes CARAS features.

Hages Wheels, a wheel manufacturer in Romulus, Mich., will switch from its mainframe system to the Oracle/Radley client/server offering, scheduled for next year.

Hages Wheels has used the CARAS system at one of its six plants, said John Bodish, MIS director. He said CARAS lets employees generate demand in real time a variety of order placement reports that its mainframe system can't deliver.

product, The Focus Hope center, staffed by students, runs a manufacturing plant that does work for automotive companies.

Linda Hanks, information systems manager at Focus Hope, said the integrated Oracle/Radley software will work as a central in-

main office and 800 remote users at NationsBank's trading sites in Chicago, London, Tokyo, Singapore and Frankfurt.

"NT Server 3.51 is a lot faster and more scalable than prior versions," Shape said. "It's all relative." Based on my experience, I've found NT Server 3.51 to be more scalable than Novell NetWare and not as scalable as Unix — which has been around for 20 years."

Jim Savely, systems consultant at Sun Co. in Philadelphia, an oil company with more than 3,000 users throughout the U.S., also reported no scalability problems with his crop of NT servers.

Savely said he seesides even a hint of a problem by deploying multiple servers rather than trying to hang lots of things off one big server. "I don't want to hit a performance wall. And if we're architecting big LAN-based databases or other applications which require a lot of horsepower, we'll make sure to allocate the necessary resources and servers. I'm taking no chances," Savely said.

NT Server

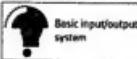
CONTINUED FROM PAGE 55

scale to eight processors, NT Server promptly crashed," the administrator said.

But times have changed. Windows NT Server users are giving the network operating system a much better scalability rating.

Rick Shape, manager of PC planning and technology at NationsBank-CRT, a division of NationsBank Corp. in Chicago, said NT Server 3.51 scales more than previous versions he has used. Shape said he can support two to four times as many users with NT Server 3.51 as with earlier versions of the network operating system.

The operating system is being booted on by 1,200 users in the



Oracle and Radley's client/server EDI system will include the following capabilities:



Software

Lotus division alters strategy

Soft-Switch adopts software-only stance

By Tim Onelette

Lotus Development Corp.'s Soft-Switch division has announced plans to sell only software, dumping its practice of bundling its software with Data General Corp. hardware.

Soft-Switch, based in Wayne, Pa., also plans new management and monitoring software packages that will be sold separately from its Lotus Messaging Switch (LMS). The plan is to make the products available on more platforms than just DG's hardware.

LMS is a backbone switch that lets users connect disparate electronic-mail systems. It provides a central directory service for an entire Email network.

The product soon will support Hewlett-Packard Co.'s HP-UX and IBM's AIX Unix operating systems. Stephen Layne, general manager at Soft-Switch, said Windows NT and OS/2 are also being considered.

With these announcements, users can choose whatever software pieces they need without burdening themselves with unnecessary hardware or software. Previously, LMS came bundled only with DG's Avion servers.

"That is very big for us," said Chris Benson, project manager for E-mail support at Deere & Co., an LMS user in Moline, Ill. "We are not a DG shop in general. You like to run a product on the operating system you are supporting."

"Thank God they did this, but how did it take them so long?" said Tim Sloane, an analyst at Aberdeen Group, Inc., in Boston. Sloane said he wondered how

Messaging

With a software-only focus, pricing will be based on a per-connection rate. It will be part of Lotus' Passport program for maintenance and upgrades. The new pricing scheme is expected to be in place by year's end. Officials said pricing would be lower than before, but no price ranges were provided.

Soft-Switch's planned management package, MessageView, will let end users track their messages from a World Wide Web browser.

The monitoring software, Mail Monitor 2.0, is in beta testing. It monitors the performance and reliability of the E-mail network. Pricing will be announced for the software when Soft-Switch revamps its LMS pricing scheme.

The release of Lotus Pages, an E-mail directory services agent, has been delayed indefinitely. It was originally intended to be bundled tightly with the LMS, Layne said.

Making the switch

- Stop requiring the Lotus Messaging Switch (LMS) to be bundled with a Data General server
- Break out the management and monitoring software in LMS as separate products users can buy if they want
- Add support for HP-UX and AIX platforms and possibly Windows NT and OS/2
- Price LMS in line with Lotus' other products, including the products in Lotus' Passport maintenance and support program

Now is a particularly good time to buy a Compaq ProLiant 4500 server. (As if there were ever a bad time.) That's because from now until June 30, Compaq will give you an

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The reality of object reuse

Despite developers' hopes, reuse is a tough task

By Frank Hayes

Recycling isn't easy — at least when it comes to objects.

Corporate information systems shops are using object-oriented languages and tools in the hope that they can cut development time by reusing parts of existing programs when they build new applications. They're trying — but success is hard to come by.

"We're struggling with reuse," said Kirk Koenig, systems architect at T. Rowe Price Associates in Baltimore, who acknowledged that his company is successful at reusing only standard libraries of code.

At the enterprise level — where companies develop hoping to recycle entire business models — "there's so much that has to be built it's getting to be almost unthinkable at this point," he said.

"Back when we brought in object technology, reuse was one of the major selling points," said Bill Bedor, director of information technologies at Medtronic, Inc., in Minneapolis. "It sounded good on paper, but the opportunity for reusing business objects is not nearly what you would expect."

In fact, 74% of corporate IS shops say



Object-oriented development

reuse is the key benefit of object technology, according to a survey last year of 50 large companies by Forrester Research, Inc. in Cambridge, Mass.

Why such high hopes for object reuse? "Object technology allows me to be in a different business in five years than I'm in today," said Charles Nettles, director of technology for the information technology division of McKesson Corp. in San Francisco. Before objects came along, programmers had to keep changing software as the business needs changed.

All business software mimics a business process, such as filling a customer's order. But object-oriented programs can be designed so that each software object mimics a real element of the business, such as a customer, a salesclerk or an invoice.

Cutting costs

Since many applications involve customers and invoices, once those elements have been designed, they should be easy to reuse. That in turn should cut the time and cost required to write applications.

But many corporate developers say they aren't getting as much reuse as they expected — or as quickly.

From the ground up

Building a reusable enterprise-wide business object model isn't just difficult for Bill Bedor; it's impossible — and not because his development staff at Medtronic isn't up to the task.

The problem is that, like many manufacturing companies, the medical device producer buys its software instead of building it whenever possible. So, Bedor's developers have no control over the business model used in many of Medtronic's enterprise applications.

"One thing we've learned about business-object reuse is that you don't get the reuse unless you extensively develop all your own software," Bedor said. "If your company's strategy is building all its own software, and it has a model of the entire business laid out ahead of time and a strategy of developing objects for that business model, then you can reuse business objects."

But companies such as Medtronic that use object-oriented development to supplement packaged software need help from software vendors, Bedor said.

"The package vendors have to make their objects accessible from the outside or hand packages into libraries of objects," he argued. "There are a lot of business objects in a package like that that we could reuse in developing our applications — a customer object, for example."

"But if the package is not object-oriented or the object is not compatible with the object technology we use, then it doesn't help us."

What's on Bedor's wish list for vendors? Create some sort of standard for what an object looks like and get most of the package manufacturers to follow that standard, he said. "Don't hold your breath waiting for it," Bedor said.

— Frank Hayes

"Because you're using already-tested, production-quality code, you've already pretested some parts of the system. You can expect the quality there during testing and into production."

— Susan Olszewski,
MIS executive, AT&T

"After five years with objects, we are now putting together processes so that we are actually reusing components," said Andre Cassolo, MIS systems integrator at Florida Power & Light Co., a division of FPL Group, Inc. in June Beach, Fla.

"We've been most successful at reusing things that are common to every application — a print management system, a reporting system, a framework for how we build user interfaces," he said. "Business object reuse is a little bit more slippery."

"We're getting reuse because Joe over there told Brian about a class that he was in," Koenig said. "It's not at the enterprise level."

Why not? One problem is that it's relatively easy to define a reusable screen or report, developers said. But it is much more difficult to create a model of a customer that can be used throughout the enterprise because the definition of "customer" can vary widely among applications.

Gaining reuse also requires more design work. "Reuse doesn't happen in a vacuum. You have to plan for it and schedule for it because it does mean more initial work," Cassolo said.

"During analysis you have to identify all the areas where you hope to get reuse, which builds in extra time up front," said Susan Olszewski, MIS executive at the EasyCommerce Services division of AT&T Corp. in Parsippany, N.J. "Then if it takes discipline to actually take advantage of what you've designed."

That includes the discipline required to keep programmers from modifying components or rewriting the code from scratch instead of reusing them without change.

"How do we keep our developers from changing the code? A lot of the guys on our support team are big, and they're all mean," Olszewski joked.

Still, if object-oriented development hasn't often resulted in high levels of re-



use, it has created some beneficial side effects. For example, reusing program screens makes it easy for developers to create applications with a standard user interface.

"Everything has the same look and feel throughout your application, and you get that consistency without having to depend upon artificial standards written down on paper that somebody may or may not follow," Bedor said.

Reusing components also means that code has already been tested, saving time in the quality assurance cycle. "Because you're using already-tested, production-quality code, you've already pretested some parts of the system," Olszewski said. "You can expect the quality there during testing and into production."

Tricks of the trade



- Identify reuse opportunities during design, not implementation.
- Make sure your team understands how to build for reuse.
- Try to recycle components and frameworks, not code.
- Recycle patterns and style, which makes other kinds of reuse easier.
- Use examples to document how components are reused.

Source: Anderson Consulting, Chicago

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company is on
the Internet,
will a fancy
port scanner
algorithm make
of my
firewall?"

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New Products

Adapt Technologies, Inc. has announced Adapt 5.0, a client/server application development tool.

According to the Lexington, Mass., company, Adapt 5.0 lets designers create a blueprint for an application's flow without having to write code. Adapt 5.0 generates from the blueprint a Microsoft Corp.-compliant interface that follows outlined business processes.

Adapt 5.0 builds application architecture that is divided into two parts: one with the presentation and flow, the other with the data logic and link to the database.

Pricing starts at \$8,000 per developer seat.

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Digital Instrumentation Technology, Inc. has introduced TransferPro for Windows 95, file transfer software.

According to the Los Altos, N.M., company, TransferPro for Windows 95 lets users send Macintosh files on a PC, preview a large number of graphic images and convert images from one format to another.

TransferPro for Windows 95 lets users write a Macintosh device driver to the disk or cartridge.

It also can read Macintosh-formatted CD-ROM drives.

TransferPro for Windows 95 includes graphic image views and converters.

It is compatible with Sequit Technology, Inc.'s EX135 drive, Iomega Corp.'s Zip and Jazz drives, magneto-optical drives, dual floppy drives and SCSI hard drives.

TransferPro for Windows 95 costs \$189. More information is available at Digital In-

strumentation Technology's home page at <http://www.dit.com>.

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Arisa Corp. has introduced Difrag 4.0.

According to the Seattle company, Difrag 4.0 is a sophisticated database defragmentation product intended to be used with Oracle Corp. databases.

The product was designed to eliminate maintenance tasks associated with fragmentation and data dispersion. It can help database administrators maximize space utilization and boost the performance of their Oracle databases.

Difrag 4.0 includes Virtual DBA, a graphical interface with an integrated suite of tools, which lets database administrators manage from a single workstation multiple Oracle databases spread across multiple servers.

It includes a database object viewer, a security viewer and a performance monitor.

Pricing for Difrag 4.0 starts at \$3,500 for a single license.

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Product short

Competitive Automation, Inc. has introduced Join, software that automates the addition of computers, terminals and other devices to TCP/IP networks. Join software eliminates manual steps by assigning IP addresses and configuration parameters to machines that are moved or added to TCP/IP networks. Join is available for Sun Microsystems, Inc.'s SunOS and Solaris and Digital Equipment Corp.'s Unix. Cost: \$1,500 per server for up to 300 IP addresses. Competitive Automation, Menlo Park, Calif. (415) 321-4000.

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COMPUTERWORLD MAY 6, 1996 (<http://www.computerworld.com>)

Software

Data mining tool offers point-and-click interface

By Dan Richman

Data mining products often require that users type in formulas, and the products let users see results displayed as symbols that look like hieroglyphics. But a California startup has released a data mining tool designed for use by businesspeople.

Mine Your Own Business (MYOB) from DataMind Software, Inc. in Redwood City, Calif., accepts queries that are created by pointing and clicking. It displays results in a Microsoft Corp. Word document or a Microsoft Excel spreadsheet or graph.

Data mining lets organizations confirm or relate theories about the data they collect. It also can detect unsuspected trends.

Unlike so-called "black box" data mining products, which don't reveal their inner workings or reasoning — MYOB has a "Why?" button that explains its conclusions.

Easy to use

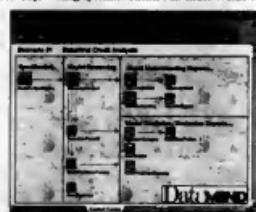
MYOB beta user Steve Brown, a statistical analyst at payroll service bureau Automatic Data Processing, Inc. in Roseland, N.J., said the software has been useful in determining whether to fix customers' hardware problems at a service center or on-site.

Brown is a trained statistician, but he said none of his training was necessary to use MYOB. He did say, however, that some basic knowledge of statistics is helpful.

Robert Moran, an analyst at Aberdeen

Group, Inc. in Boston, was more forceful on that point. "MYOB is very automated, but there's no way novice users are going to plug it in and start getting meaningful results. It requires study, maybe even a little consulting," he said.

MYOB servers run under Hewlett-Packard's Compaq HPUX, Sun Microsystems, Inc.'s Solaris and Microsoft's Windows NT operating systems. Clients run under Windows



DataMind Software's MYOB can help users crunch data and interpret results

3.1 and Windows 95. Data is accessible from Microsoft's Open Database Connectivity-compliant database.

The Solo version of MYOB, used by one person with a maximum of 3,000 records, costs \$2,458. The Professional version, which resides entirely on a PC, costs \$4,999. The Data Cruncher version processes data on the server and passes results to a client. It costs \$25,000 and up.

NT support

CONTINUED FROM PAGE 55

downs NT, Hewlett-Packard Co. in Palo Alto, Calif., will roll out support later this year.

These announcements are good news for users who have needed NTware. "It's looking better, but when you compare it to what's out there for NetWare or Unix systems, it still has a ways to go," said Erik Goldoff, information systems manager at the Centers for Disease Control and Prevention in Atlanta.

Different perspective

As Windows NT moves into the mainstream, vendors are focusing not just on monitoring the operating system, but the applications themselves. That's the common thread between packages from Comshare Corp. in Farmington Hills, Mich., and New Dimension Software, Inc. in Irvine, Calif.

Comshare's Etools for Windows NT lets administrators monitor applications, Microsoft's SQL Server, the NT operating system itself and networks. The package looks for faults and performance problems. It also includes tools to diagnose, prevent

and correct application problems or failures. This can help administrators optimize performance and system availability.

Etools for Windows NT will be available for beta testing this summer. Pricing will begin at \$22,000.

New Dimension this month shipped Control-M for Windows NT. Control-M lets systems managers automate the setup, scheduling and execution of processes that run on different computing environments, such as MVS, VAX, AS/400, Unix, Windows 3.1 and OS/2. Prices start at \$20,995.

BMC Software, Inc. in Houston soon plans to add application-specific Windows NT tools, company officials said.

A user at a large forest products manufacturer in the Pacific Northwest said Eco-tools for Windows NT will let him monitor NT networks in the same way that he tracks Unix networks.

"It gives us more control, which we'll need as we grow our installations," said the user, who requested anonymity. Christian Geschickter, an analyst at Herwitz Group, Inc. in Newton, Mass., says Eco-tools' move to NT is one more indication of the strength of the Windows NT market. "We'll see more tools for NT shortly because this is where the market is growing," he said.

Evil Empire

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what a Resident
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IBM AntiVirus software detects more than 6,000 strains of computer viruses, including polymorphic viruses and others previously thought to be undetectable. The system also provides false alarm elimination and infection verification. It will alert you to suspicious virus-like activity

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Users optimize data networks by outsourcing, 70

The Enterprise Network

Novell cozies up to 'net

By Laura DiDio

In a bid to bolster its Internet capabilities, Novell, Inc. has announced support for a new protocol that lets businesses use the Internet to access information stored in NetWare file servers.

Novell will release full support for the Lightweight Directory Access Protocol (LDAP) this fall, according to Vic Langford, senior vice president and general manager of Novell's Internet/Intranet Business Unit.

"We're opening up NetWare and access to all of the services of NDS to the Internet," Langford said.

Support for a lightweight
LDAP is an emerging directory access standard for the Internet that is expected to be adopted by the Internet Engineering Task Force. It was developed by the University of Michigan as a scaled-down version of the more powerful Directory Access Protocol (DAP). The LDAP protocol was designed to provide MS-DOS, Windows and Macintosh systems with a so-called "thin client" capable of accessing the Internet.

Lightweight Directory Access Protocol support opens NDS to the Internet

- ✓ Let browsers and applications find and use NDS resources via the Internet
- ✓ Let developers use one set of APIs to write to LDAP and NDS
- ✓ Give independent software vendors and end users native TCP/IP access to NDS without requiring Novell to re-architect NetWare or NDS
- ✓ Let companies use any standard browser to access, browse and query NDS for names, E-mail addresses and device information

By contrast, support for the more robust X.500 DAP protocol was designed to give higher-end Unix machines wide-area access. DAP requires a system equipped with about 500K bytes of memory, which is prohibitive for most desktop machines. The amount of memory LDAP requires varies by application, but Langford estimated it ranges from 25K bytes to 30K bytes.

Additionally, Novell's support for the LDAP protocol will let application developers create NetWare Directory Services (NDS) applications by

using one set of application programming interfaces, Langford said.

Jamie Lewis, president of Burton Group, Inc., a Salt Lake City consulting firm, said Novell's support for LDAP is a win-win situation for Novell and its users. By supporting LDAP, Novell is opening NDS and extending it to support interoperability on the Internet, between Novell and LDAP applications, he said.

Users agreed with that assessment. Gary Wilkerson, supervisor of end-user services at Kaiser Permanente Health Plan, Inc. in Atlanta, which has some

40,000 NetWare users companywide, said Novell's support for LDAP will be "crucial" to its users.

Kirk Bridges, director of product development and deployment at the University of Michigan's Information Technology Division, a large NetWare 4.1 shop, also said it's important.

"The more ubiquitous LDAP becomes, the more useful it is to the University and other enterprises that want to use the Internet to access NDS services," she said.

Langford said support for LDAP is part of the Oren, Utah-based firm's strategy to "make the network smarter" by letting people and businesses easily access applications and make NDS a pervasive directory service engine.

Novell's support for LDAP will let users deploy NDS to support multiple applications and services. "The support for LDAP means that I'll be able to use NDS to support a variety of services and application," Wilkerson said.

But LDAP does have some limitations. The protocol doesn't include a strong security authentication. But it complements NetWare's NDS, which has strong security features embedded within.

NetWare support for LDAP will be available this fall. Pricing and packaging haven't been announced.

Plaintree Systems to tap high-end switch market

By Bob Hirshon

While most vendors are flocking to the low-end switching market with small "feature-challenged" boxes, Plaintree Systems, Inc. is headed in the other direction.

The midrange switch maker in Waltham, Mass., is continuing to battle the price-slackers on the low end. But now it's entering the high-end switching market, aiming to offer more features than its far larger rivals and to price some of those products well below theirs.

One Plaintiff systems integrator and user said he expects customers to remain loyal. "We would definitely consider the new switches, to which only 3Com comes close," said Joel Weinbach,

Catch the Wave		
Plaintree's new switch wave . . .		
MODEL	SHOTS AND PORTS	PRICE
Wavelength 1000 for data center	8 slots, 16 ports	\$49,995
Wavelength 1200 for department	10 switched Ethernet ports, two open slots	\$39,995
Wavelength 1300 for enterprise	16 switched Ethernet ports, four open slots	\$49,995

. . . is beating the big boys on pricing per port

VENOR	PRICE PER PORT	MIS
3Com	\$1,000	Yes
Cisco	\$1,000	No
Plaintree	\$1,000	No

senior vice president at The Computer Group/US Connect in Columbia, S.C. "We've struggled to find products with the same feature package and haven't been terribly successful. And I believe that the other current Plaintiff customers will do the same."

Weinbach said similar products cost less than the Plaintiff boxes but have only a subset of the features. "The Plaintiff products have such solid engineering free support, which is lacking in other comparable products," he said.

Industry analysts said Plaintiff's strategy is on the mark. "Sure, they're fighting an uphill battle. But they've realized that the big users aren't looking for the lowest-cost option; they're

looking for one with loads of functionality," said Eric Hindin, an analyst at The Yankee Group, a consulting and research firm in Boston.

Built-in features, which Hindin said are rare in other switches, include several layers of virtual LANs to create logical LANs, Remote Monitoring (Rmon) for monitoring network health and a complete selection of high-speed uplinks for tying users to servers and backbone networks.

Hinden said that of the switching market's Big Four — 3Com Corp., Cabletron Systems Inc., Cisco Systems, Inc. and Bay Networks, Inc. — only 3Com supports all the features Plaintiff does. "They've seen a lot of 'sideline' on various LANs, but very little product," he added.

Shuttleworth refers to vendor presentations that talk about ad-

- High-end switches, page 70

The Enterprise Network

Firm offers cheaper way to optimize data networks

By Bob Wallace

Users of Network Equipment Technologies, Inc. (NET) switches now have a quick and easy way to optimize their data networks, which could mean savings of at least 10% per month on wide-area network charges.

Make Systems, Inc.'s Net-MakerSwitch service offers NET users a more effective option than hiring a consultant and a much cheaper alternative to spending tens of thousands of dollars on equipment to optimize their networks themselves.

Optimization route

Make Systems' technicians will perform a network benchmark to identify peak traffic times, heavily

used routes, quiet times and less traveled network paths. The latter could be used to support new applications or cut to save on WAN charges.

Pricing for the service, which was announced last week, will start at \$8,750. The process takes 15 days and was designed largely for NET users who want to outsource the complex network optimization effort.

"Large users are so tied up with the change involved with day-to-day network operations that they just can't do network optimization," said Daniel Briere, president of TeleChoice, Inc., a Verona, N.J. consultancy. "That's a shame, because lots of users are paying for more capacity than they need."

One large NET switch user is eager to use the service.

"Our plan is twofold: We want

Why users will want to optimize their WANs

- Falling rates for popular data services such as frame relay
- New and higher speed options for data lines
- Telecom deregulation in which local carriers merge to offer services with greater reach
- Deployment of more client/server applications
- Network expansion from mergers, acquisitions and divestitures

to see if we have enough bandwidth to roll out new client/server applications, and we want to see where we have too much bandwidth that could be used to save on monthly charges," said John Carpenter, director of telecommunications at Pulse-Webber, Inc., in New York. "Dropping one T1 alone [1.544M bit/sec.] could save us \$2,000 a month."

Cost considerations

The hardware/software package large users would need to optimize their data networks can cost upward of \$60,000, and that doesn't include the many probes — which, cost \$2,000 to \$15,000 each — needed to complete the task.

Network optimization is becom-

ing increasingly important as rates for data services such as frame relay have fallen, primarily because smaller carriers are trying to undercut prices of AT&T Corp., MCI Communications Corp., Sprint Corp. and LDDS WorldCom.

Competition will increase and drive prices down further as a result of the long-awaited and recent deregulation of the telecommunications industry as local telephone carriers enter another's market.

Make Systems' President Stephen Howard said users with rising bandwidth needs caused by "greedy" applications can stand to save by moving to the next highest speed service rather than buy in small increments.

Cisco helps users cut costs on two fronts

By Bob Wallace

Cisco Systems, Inc. last week announced a product that obviates the need for users to buy standard Ethernet hubs and another that makes it easier and cheaper to link Novell, Inc. NetWare LANs to the Internet.

Instead of tying desktop computers to regular Ethernet hubs and linking them to switches, Cisco's Group Switching Module eliminates the dilemma by connecting those same devices directly to the company's highest-end switch.

The product, which will ship in July, combines hubbing and switching and works in Cisco's Catalyst 5000 switch. It can have up to 144 ports for less than \$100 per port.

"Users can save hundreds and thousands of dollars by using this module instead of buying loads of regular Ethernet hubs," said Eric Hudis, an analyst at The Yankee Group, a consulting and research firm in Boston. "It also helps simplify network management and administration."

The module also will let users build virtual LANs, which are logical rather than physical LANs. It comes with Cisco's Internetwork Operating Software, which is akin to a PC's operating system.

"Users can save hundreds of thousands of dollars by using this module instead of buying loads of Ethernet hubs."

— Eric Hudis,
analyst,
The Yankee Group

1003 and 1004 each have an Ethernet port and an Integrated Services Digital Network Basic Rate Interface port. The 1005 model has a port for a private line or frame-relay link.

The three gateways come with Cisco's new ClickStart software, which was designed to simplify installation of the gateways.

A 20-user license for the 1003 or 1005 will cost \$2,495, and a 50-user license will cost \$3,750. A 20-user license for the 1004 will cost \$2,995, and a 50-user license will cost \$5,950.

High-end switches

CONTINUED FROM PAGE 69

vanced features and products that aren't available yet.

For switching, Plaintree offers 10/100M bit/sec. Fast Ethernet switches, which are becoming popular, and Fiber Distributed Data Interface (FDDI) switching, which lets users boost FDDI backbone network performance.

The new Plaintree switches sport the following features and capabilities:

- Spanning tree, in a network

that has multiple routes between two points, spanning tree boosts network performance by choosing the most efficient route available. If that path fails, spanning tree automatically reconfigures the network to create a second path.

■ Virtual LANs. Plaintree gave Plaintree high grades for virtual LAN support. The vendor's products support port, address- and protocol-based virtual LANs.

■ FDDI switching. Many large users who have installed FDDI

backbones in their building or campus networks are running out of bandwidth. Plaintree is among the first vendors to offer affordable FDDI switching wares (see chart, page 69).

■ Remote technology gives users the tools to closely and continually monitor the performance of each port of their switch.

■ High-speed uplinks. Every vendor promises them, but few have a variety of options. Plaintree, however, is prepping Fast Ethernet units and others.

The low-end and midrange Plaintree switches are shipping, and the high-end unit is due in June (see chart, page 69).

Briefs

FCC proposes spectrum set-aside

The Federal Communications Commission proposed setting aside a slice of radio spectrum for short-distance wireless networks. The spectrum, which would be available for free and without a license, could be used by schools that can't afford wiring and telephone hookups. It might also be used by companies to establish very flexible, ad hoc LANs that connect mobile PCs at distances of a few hundred yards. Apple Computer, Inc. has pushed the proposal for several years.

Making E-mail safe

At the Electronic Messaging

Association show, a group of 10 vendors, including RSA Data Security, Inc. and Northern Telecom, announced support for the Secure/Multipurpose Internet Mail Extension (S/MIME) standard for internet electronic-mail encryption. Some see this as a way to supplement S/MIME because S/MIME will improve security for Simple Mail Transfer Protocol mailers.

Gteotek adds Boston
Gteotek Communications, Inc., a wireless network provider in Montvale, N.J., expanded its wireless data network holdings into Boston. Like Gteotek's other networks in New York, Philadelphia, Baltimore and Washington, the Boston mobile communications network pro-

vides integrated voice and data communications. Gteotek expects to offer commercial network services in Miami, Dallas and Tampa/Orlando in Florida later this year.

Telecom group puts on squeeze in France

Several telecommunications companies have formed a pressure group to defend their interests as the French government plans to liberalize the telecoms market. AOST (Association of Telecommunications Operators), which includes AT&T France, BT France, and Cable & Wireless France, is particularly concerned with regulatory issues in France. Its members question how the Ministry of Telecommunications, designated to oversee regulatory issues, can remain objective when it's a principal shareholder in France Telecom.

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ascom Timeplex

We applaud your farsightedness in seeing the need for an "end-to-end" solution across public, private or hybrid networks. The line between local and wide area networking becomes increasingly blurred with advances in technology, changes in the telecommunications regulatory environment, and the increased focus of organizations on their primary business endeavors. Customers need the ability to support all types of traffic while maintaining quality of service levels, all while reducing networking costs.

We confess, however, the agreement to acquire StrataCom, Inc. for approximately \$4 billion in a stock transaction raised an eyebrow or two here at Ascom Timeplex. Have you heard about the company that TODAY can integrate:

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- Digital voice
- LAN bridging
- LAN routing
- TDM
- Frame Relay Switching/Access
- X.25
- IBM SNA networking
- BISync
- Async
- ISDN
- ATM

on ONE SINGLE PLATFORM? That company is Ascom Timeplex and the product is the SYNCHRONY™ ST-1000.

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Sincerely,

Ascom Timeplex, Inc.

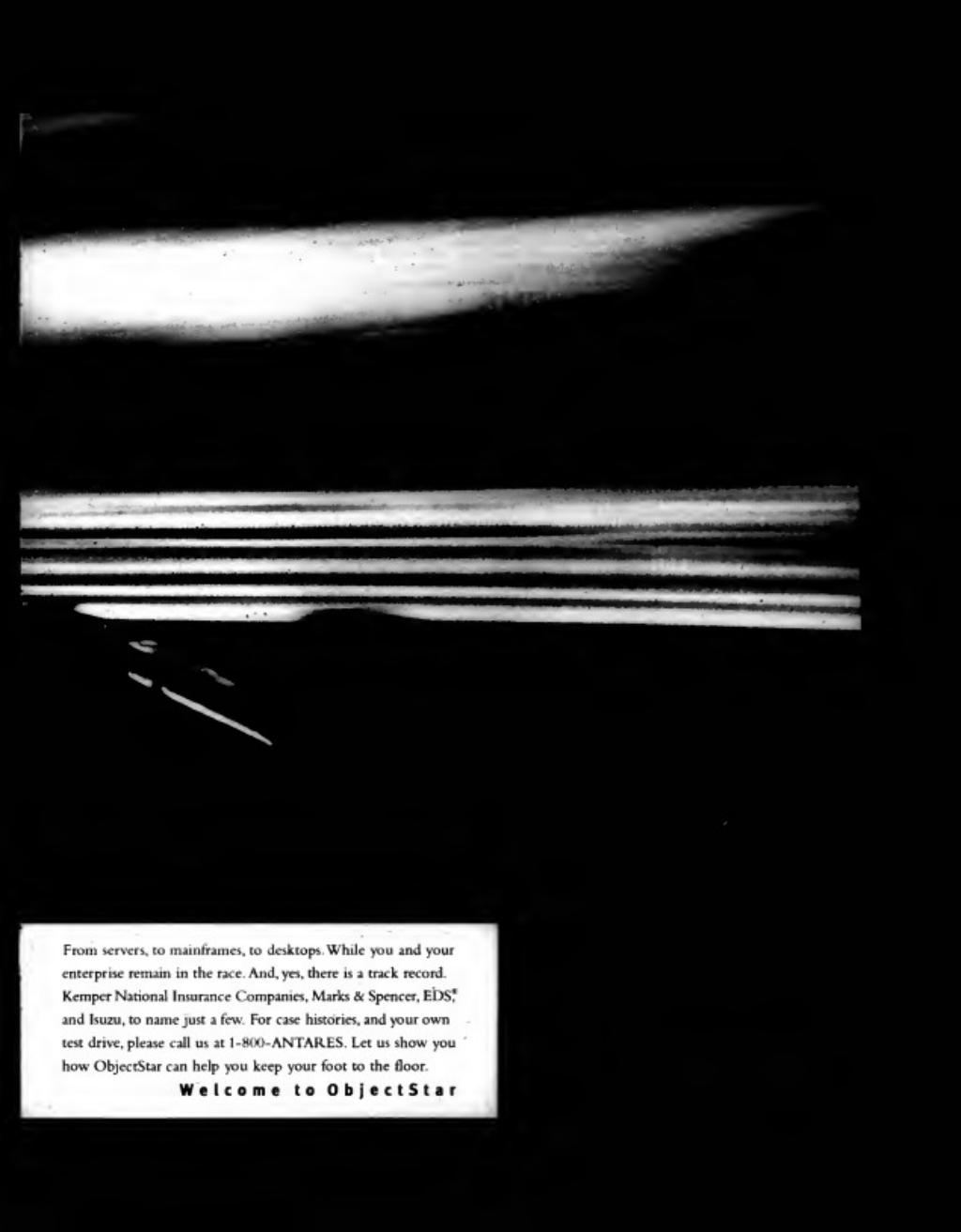
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Welcome to ObjectStar

The Enterprise Network

Novell unveils Web Server upgrade

New features aim to make NDS the directory of choice on the Internet

By Niall McKay
NICE, FRANCE

Attendees at Novell, Inc.'s BrainShare Europe '96 conference here got a preview of the upgrade for the NetWare Web Server, which allows World Wide Web browsers to access NetWare Directory Services (NDS).

Further, Novell is set to take on Lotus Development Corp.'s Notes and Microsoft Corp.'s Exchange in the groupware arena with the help of strategic partnerships with online services, according to Novell Chairman and CEO Robert Frankenberg.

Also at the conference, Novell tried to demonstrate the new Web Server's uniform resource locator (URL) service, which was designed to enable a user to send a URL via electronic mail to a third party. The URL can then point to a file in the user's directory and give the third party access to that file. However, the demonstration didn't work, and Novell employees were forced to improvise.

The new version of the NetWare Web

Expansion and growth

Last year, Novell sold \$2 billion in software, selling 87,000 NetWare Servers and expanding the NetWare user base to 55 million people, according to the company. NetWare 4.x sales grew by more than 40% last year, and the installed base of GroupWise grew by 2.5 million users to 5.5 million users, according to Novell executives.

"The new features are part of Novell's plan to make NDS the directory of choice on the Internet," said Bruce Thompson, managing director of LAN Consulting, an independent consultancy in Glasgow and a BrainShare attendee. "There are many companies running NetWare that need to use information held on the LAN to provide users with information in a meaningful fashion."

Competing with Notes
Meanwhile, online service companies will offer the next version of Novell's GroupWise to customers and help bring the product into competition with Notes, Frankenberg said.

The online service providers will offer users a network infrastructure for GroupWise connectivity, much the same way British Telecommunications PLC and other carriers now support Notes.

Novell declined to name the online service providers.

Novell officials here demonstrated the next version of the GroupWise messaging and groupware product, which until now

has been called GroupWise XTD but will be called GroupWise 5.0 when it's released in August. GroupWise lags in third place in the LAN messaging market behind Lotus' CC-Mail and Microsoft Mail.

Aggressive pricing may give GroupWise an edge over Notes, one analyst said.

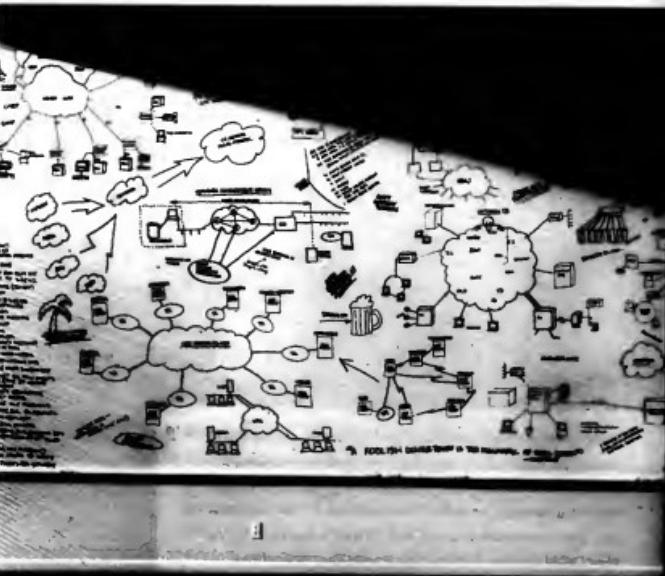
"Notes is really a groupware environment, but it requires a much bigger investment than GroupWise," said Rana

Maine, a consultant at Inteco, an independent consultancy in Surrey, England. "GroupWise is a cheaper, smaller way of doing things."

McKay writes for the London bureau of the IDG News Service.

SIEMENS
ROLM Communications

Handling the complexities of your telecommunications system is a long



The Enterprise Network

New Products

Cylink Corp. has introduced SecureFrame, a high-speed data encryption and security system for frame-relay-based wide-area network environments.

According to the Sunnyvale, Calif., company, SecureFrame works in conjunction with any public or private frame-relay

network, dynamically encrypting data while authenticating its source and destination.

SecureFrame was designed to deliver throughput of up to 2.048M bit/sec. and let networks run at full speed without performance slowdowns caused by the encryption and authentication process.

SecureFrame costs \$8,995.
► Cylink
(408) 735-5800

Stampede Technologies, Inc. has announced OverDrive, a remote node acceleration.

According to the Dayton, Ohio, company, OverDrive lets users in the field connect to a corporate LAN with less access time. It is a client/server utility designed to increase performance of file/system applications over a remote node connection by reducing traffic and increasing bandwidth on the remote access link.

OverDrive caches data locally and verifies the integrity of the cached data when it is accessed. It was designed to eliminate redundant file reads across the remote link, which minimizes traffic and maximizes throughput.

It has two components: OverDrive Client and OverDrive Server. The Server Verifier runs as a Novell, Inc. NetWare Loadable Module on a file server or as a process on a Microsoft Corp. Windows NT Server.

Pricing for OverDrive Client starts at \$119. The OverDrive Server starts at \$295.
► Stampede Technologies
(513) 291-6035

GTE Corp. has introduced InfoGuard 100.

According to the Stamford, Conn., company, InfoGuard 100 is an Asynchronous Transfer Mode (ATM) cell encoder that provides end-to-end protection of sensitive data through a public or private ATM network. It features a public key-based encryption process.

Pricing for InfoGuard 100 starts at \$49,995.
► GTE
(203) 965-2000

Tektronix, Inc. has introduced XpressWare 8.1, network communications software.

According to officials at the Beaverton, Ore., company, XpressWare 8.1 lets Tektronix TekXpress Negotiations provide access to data — including audio and video — from any host on a corporate network or the Internet. It includes distributed video playback and remote administration features.

XpressWare 8.1 lets users fast forward, rewind and replay specific sequences while viewing on-demand video clips. When booting up, XpressWare compares the version number of its internal host-ROM with that of the hostROM on the host computer and automatically downloads the newer version.

Pricing for XpressWare 8.1 starts at \$650 per site.
► Tektronix
(503) 627-7111

Product short

Power Center Software LLC has announced The Power Center Suite for Windows NT, enterprise management software designed to detect and correct problems with systems, networks, peripherals and applications. Pricing starts at \$495 per node. Power Center, Englewood, Colo. (303) 220-1500.

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Faster alternatives to groupware take off, 8s

WebTrak Internet Marketing Module does the following:

- Lets companies create HTML electronic forms via an API mechanism

- Lets sales people download software and send documents over the 'net'

- Lets companies link their home pages to Autumn's sales and marketing software for lead generation

Sales software firms go to Web

By Mindy Blodgett

Though it is primarily an advertising vehicle, the Internet has the potential to be a highly effective, marketing and sales tool, industry observers said.

And sales force automation, customer support and contact management software vendors are heading in increasing numbers to the Internet to give users a competitive edge.

"The hottest trend right now in sales automation and customer support is Web-based products," said Judith Hodges, an analyst at International Data Corp., in Framingham, Mass. "Everyone is working on advancing their Web strategies."

Although many products are being planned, products that truly help the sales process via the World Wide Web still have to come by, analysts said.

Some users say they are intrigued by use of the Web for sales or customer support, but they aren't sure if they need them. Cy Hoomann, manager of services at Entergy Corp., an electrical utility in New Orleans, said though his company is building an intranet, "we are just in the beginning stages of thinking about using the Web."

"I can imagine the Web would be useful in allowing end users direct access to the utility," Hoomann said. Ken Dulany, an analyst at Gartner Group, Inc. in San Jose, Calif., said one of the features needed in sales force automation software is a standard way to format functions such as document storage.

"Some of the vendors have released proprietary formats," he said. But they should standardize on Hypertext Markup Language, the standard for defining links between documents, he said.

Another issue sales force automation software companies face is security over the Internet, Dulany said.

One Web-based product on the market is VanWeb from Vantive Corp. in Santa Clara, Calif. The software features hypertext linking to provide universal access and embedded links to other pages, as well as

Judith Hodges,
analyst, IDC

Tools, page 87

Agencies sell seats online

That's the ticket!

By Mitch Wagner

Ticketmaster Corp., the largest ticket-selling agency in the U.S., plans this week to launch nationwide trials of selling over the Internet.

Ticketmaster, at <http://www.ticketmaster.com>, isn't the only company that sells tickets online to real-world events. Playbill magazine, at <http://www.playbill.com>, and The Shubert Organization, Inc., both in New York, have linked up to launch a pilot program to sell tickets to Broadway plays on the Internet. They plan to expand the program to the general public later this month. Meanwhile, MovieFone, Inc., in New York, whose site is at <http://www.moviefone.com>, has been offering tickets online to movie theaters nationwide since July.

"We feel like the Internet is where commerce is going," said Bob Perkins, vice president of online services at Ticketmaster in Los Angeles.

Ticketmaster will begin offering ticket sales for the Lollapalooza '96 tour, a multi-city road show of alternative rock bands, on its World Wide Web page this week. By the end of June, the \$1.6-billion company plans to offer tickets online for all its events.

The natural thing to do

Selling tickets to events is a natural business to go online. The electronic mechanism for taking orders is already in place — the mainstay business of all three companies is selling tickets over the telephone. In all three cases, the problem was connecting the ticket sales systems to the Internet.

This required a partnership between information systems and an external organization familiar with Internet marketing. IS people built the Web sites, while the outside groups built the Web pages. This gave IS additional staffing, but more importantly, IS got the ability to put Web pages up fast while learning how to use the Internet.

"We do everything in-house now. But at the start, we had never built a Web site before, and we needed horsepower for the development," said Matt Blumberg, MovieLink product manager at MovieFone. MovieFone turned to the Arts Technology Group, an Internet consultancy in Boston.

Ticketmaster used Starwave Corp. in Seattle. Starwave puts out the popular ESPN, Inc. and Mr. Showbiz sites, among others. Both Starwave and Ticketmaster are owned by Microsoft Corp. co-founder Paul Allen.

Meanwhile, Playbill and Shubert called on the Symphony Group to help design their site.

A key component to selling tickets online is connecting to the database of information about tickets, pricing and availability. The experiences for Playbill, Ticketmaster and MovieFone have been very different.

The Playbill site needed to connect to Shubert's Telecharge com-

Ticket, page 81



MovieFone has been selling tickets online to theaters nationwide since last July



Ticketmaster plans to offer online ticket sales for all its events by June



Playbill and Shubert have joined up to sell theater tickets online

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Groupware alternatives take off

By Kim S. Nash

Groupware is overkill. Or so say several vendors that last week released Web-based packages that they say are slimmer, faster and cheaper alternatives to Notes and other groupware programs.

The argument is that much of what people use systems like Notes for — orderly, documented conversation and document sharing — is more easily done with software designed specifically for those purposes.

Net-Genesis Corp. and West Coast startup WebFlow announced packages that are based on World Wide Web standards and designed to let users work on documents at the same time and/or conduct threaded, archive discussions online.

Another new company, Archon Software, Inc., demonstrated a similar product at last week's Internet World show in San Jose, Calif. And at the show, Radnet, Inc. showed its \$1,695 WebShare package; the 1-year-old Cambridge, Mass.-based firm plans to ship WebShare by the end of next month. A development kit will be had in intranet applications for WebShare costs \$695 per developer.

This discussion group twist on the Web vs. groupware debate has grabbed user attention.

"If we can do this more cheaply than Lotus Notes and more easily than actually building [similar software] ourselves, it makes a lot of sense to me," said Erik Monsen, chief information officer at Mainstream Online, a job placement company in Stamford, Conn.

On the other hand, Notes packs punches that some discussion group products don't — database support and application development tools, for example.

Mainstream Online evaluated Lotus Development Corp.'s Notes early this year as a way to add discussion groups to its career Web site, but it balked at the expense and maintenance comprising.

"It's like driving a 10-penny nail with a sledgehammer," Monsen said.

Better, he said, was NetThread, a discussion group product from Net-Genesis in Cambridge, Mass. NetThread is a server application that lets Web site visitors conduct threaded Usenet-style discussions by posting comments to one another's messages. The product was less than half the cost of in-

The Internet

Discussion groups

Share and share alike

WebFlow, a startup in Santa Clara, Calif., has released its first product, a Web-based document sharing system called WebShare.

In comes powerful

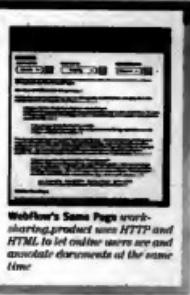
HyperText Transfer Protocol, HTTP

Format for moving documents around the Web.

Language for tagging parts of Web documents to display information in different ways, such as bold, italic, large or small text. It also allows for hot links, which are pictures or words that, when clicked, usher users to other Web pages.

HyperText Markup Language, HTML

Format for moving posts around Internet newsgroups such as Usenet.



WebFlow's Same Page worksharing product uses HTTP and HTML to let multiple users see and annotate documents at the same time

stalling Notes, he said, and simpler to administer.

Net-Genesis unveiled NetThread 2.0, an upgrade aimed at internet applications. For example, it lets webmasters from different departments maintain different discussion forums, but it also lets an administrator monitor those areas from a single panel. Links to databases are done through Open Database Connectivity gateways.

NetThread 2.0 isn't yet priced. But when it ships in June, its pre-

decessor, originally priced at \$895, will be available for free on Windows NT.

WebFlow, meanwhile, is a new company in Santa Clara, Calif. Its Same Page Web package was designed to track and organize tasks for project teams online. The product costs \$3,500 for 10 users.

This steady stream of work-

group products that pinpoint specific tasks reflects a bigger trend in Web software, said Suri Duddella, Internet manager at Web-

spring Resources, a Washington-based technology consulting firm for financial companies.

Many new products aren't big packages akin to, say, client/server applications. Duddella explained. Rather, they are smaller modules that can be snapped into existing systems or strung together to form customized applications, he said.

"It seems like people on the Web don't want to be bothered by a lot of extra stuff on their hard drives anymore," he said.

Popularity contest

	Number of sites running server		
	January 1995	December 1995	Mar. 1996
University of Illinois' Avenue BICA	658	10,813	58,575
World Wide Web Consortium's CIC	10,835	22,770	48,198
University of Michigan's Web server	767	8,576	30,585
University of Wisconsin's Web server	3,733	7,533	15,022
University of Minnesota's Web server	0	0	4,933
Stanford University's Web server	173	2,045	8,531
University of Texas' Web server	72	480	3,687

*includes original server-only, not subsequent versions based on the previous server built by others.

Source: Aug. 1995 (68,957); Dec. 1995 (66,374); May 1996 (93,516)

Sources: Network Lab, Bain, Impact

Network Lab, a Web consulting firm in Bath, England, started to track World Wide Web server usage last August by randomly "plugging" known Web sites. Network Lab sent an electronic message that asked the site, "What Web server are you running?" Almost 30,000 sites were polled in this automated way; more than 90,000 sites were flagged for last month's results.

The survey is published monthly at <http://www.networklab.co.uk>. It doesn't monitor Web server use in Internet applications because these sites are protected by firewalls and therefore can't be plugged.

Ticket

CONTINUED FROM PAGE 77

puters, which oversee phone ticket sales for 20 theaters in New York, Boston and Washington. Those systems run a proprietary online transaction processing system on Control Data Systems, Inc. mainframes.

Shubert is moving to Digital Equipment Corp. Alpha servers with an Informix Corp. database. In the interview, to preclude having to do the work twice, Shubert off-

ered to opt for an approach that David Andrews, director of operations, acknowledged is something of an embarrassing kludge: An operator switches a *Physical* line using a PC running Netscape Communications Corp.'s Navigator and types orders into a terminal that feeds the Control Data mainframe.

Ticketmaster is running a two-stage trial. Consumers will type lottery tickets orders into a PC on the Web running on a Commerce Server from Microsoft. Orders will be stored in a Microsoft SQL Server database

and then transferred either via diskette or file transfer over the Internet to the Ticketmaster ticketing system. By late June, the company will deploy software on the Commerce Server that emulates the front end of the telephone order entry system.

The MoviePass system is more straightforward. Both the telephone order-entry system and the Web server run on PCs with the Berkeley Software Design, Inc. operating system. Connecting the transaction systems was a simple matter of sharing data between similar databases.

Tools

CONTINUED FROM PAGE 77

relational database navigation. Users can create and upgrade data via the Web and make inquiries on VanWeb, which costs \$25,000 per suite. That price includes a server.

William Laversic, vice president of customer services at Am-Tech Corp. in Nashua, N.H., uses

VanWeb for customer support, to provide answers for frequently asked questions on products and to allow customers to request samples of products.

"By using the product, we have been able to decrease customer calls," Laversic said. "By using the Web, customers have been able to resolve 20% of the problems themselves. We have also been able to give quicker responses and callback times to our customers."

Aurum Software, Inc., a leading sales force automation provider in Santa Clara, Calif., also has a product on the market, Called Web-Trak, it costs about \$10,000 and runs on any Unix Web server. Web-Trak integrates with Web software from Netscape Communications Corp. and Oracle Corp. and with Aurum's SalesTrak and TelTrak software.

Web-Trak gives firms the ability to integrate their sales and marketing applications over the 'net.

The Internet

New Products

Fulcrum Technologies, Inc. has introduced Surfboard 2.0, information retrieval software for Internet and intranet servers.

According to the Ottawa company, Surfboard 2.0 has a distributed search architecture that allows indexes to be stored on local servers. It supports saved, reusable

queries that can be created by individual users for personal use or by administrators for public use.

Surfboard 2.0 has configurable HyperText Markup Language (HTML)-based templates for results lists. It supports HTML and Adobe Systems, Inc.'s Portable Document Format. It also translates documents to HTML so any indexed document can be viewed by common World Wide Web-based clients or browsers.

Pricing for Surfboard 2.0 starts at \$6,250 per server. More information is available at Fulcrum's home page at <http://www.fulcrum.com>.

► **Fulcrum Technologies**
(613) 238-1761

O'Reilly & Associates, Inc. has unveiled WebBoard, a multithreaded conferencing system.

According to the Sebastopol, Calif., com-

pany, WebBoard lets webmasters add online conferencing to any Windows World Wide Web server that fully supports the Windows Common Gateway Interface. It includes activity logs, user profiles, remote administration capabilities and private responses through electronic mail.

WebBoard features virtual boards that let a single site house up to 255 individual boards with an unlimited number of confer-

ence rooms.

WebBoard costs \$240. More information is available at O'Reilly & Associates' home page at <http://software.ora.com>.

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Macromedia, Inc. has introduced Authorware 3.5, multimedia and World Wide Web publishing software for cross-platform interactive uses such as training and courseware development.

The San Francisco company said Authorware 3.5 is multimedia authoring software that was designed to let users survey customers online and send their responses to a server database automatically. It works on Microsoft Corp.'s Windows 95, Windows NT, Windows 3.1 and Apple Computer, Inc.'s Power Macintosh and Macintosh.

The latest version of Authorware includes Shockwave — a tool that compresses and streams sound, graphics and animation — for delivering data-intensive applications over the Internet.

Pricing starts at \$4,995.
► **Macromedia**
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IQ Software Corp. has announced IQ/LiveWeb, which provides on-demand access, analysis, reporting and publishing of information from corporate databases on World Wide Web servers.

According to the Norcross, Ga., company, IQ/LiveWeb lets corporations use the Internet infrastructure for information access and dissemination via standard Internet browsers.

IQ/LiveWeb includes features for scheduling and executing queries and reports on the server, and report creation. It also includes hyperlinking and navigation tools.

Pricing for IQ/LiveWeb starts at \$3,995.
► **IQ Software**
(404) 446-8880

Abrams Software, Inc. has introduced PCYACC/Web 1.0 a World Wide Web language tool kit.

According to the Portland, Ore., company, PCYACC/Web 1.0 helps users develop Web language scripting products. It supports Sun Microsystems, Inc. Java, Microsoft Corp.'s Visual Basic, Hypertext Markup Language, Standard Generalized Markup Language and Virtual Reality Modeling Language.

Pricing for PCYACC/Web 1.0 starts at \$495.

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Corporate Strategies

As Lockheed Martin slashes help desk personnel, it must ask:

By Thomas Hoffmann

Lockheed Martin Enterprise Information Systems is trying to keep its 150,000 end users from going ballistic.

About help desk support, that is.

The Orlando, Fla.-based information systems unit of Lockheed Martin Corp. will consolidate 13 help desks across the U.S. on a common client/server platform. Called the Multipurpose Action Response System (MARS) and expected to be completed in mid-July, the new setup is anticipated to save the firm \$7 million over five years.

Those savings will come from reducing help desk staff from 70 to 40, lowering real estate expenses and eliminating support of multiple help desk systems.

Despite the staff reductions, the system should enable Lockheed Martin to more proactively fix systems problems that affect large groups of users. About 1,100 calls for help stem from each day from the company's 40 U.S. offices.

The MARS help desk will be located in the company's Denver and Orlando offices.

In compensation

To ensure that its help desk would rank among the industry's best, Lockheed Martin measured its operations against those of 100 other help desks with the aid of the Help Desk Institute in Colorado Springs and Verity Consulting in Los Angeles, said Dennis Mercurio, who manages client support and led the MARS project.



Will custom go BALLISTIC?

Lockheed Martin uses Remedy Corp.'s help desk package, which runs on two Hewlett-Packard Co. HP 9000 K100 servers. The TCP/IP, Ethernet LAN-based system replaces a variety of hometown packages that ran on IBM PCs, Macintoshes, Sun Microsystems, Inc. Unix boxes and other workstations. Help desk workstations include Sun and HP Unix

machines, IBM PCs and Macintoshes.

Help desk and network management integration are prime areas where merging defense firms — in this case, Lockheed Corp. and Martin Marietta Corp. — can achieve big cost savings, said Paul A. Strassmann, former chief information officer at the Department of Defense.

Companies can lower their per-seat help desk costs if they recentralize and "do it from a sophisticated central site," said Strassmann, who now teaches information warfare at the U.S. Military Academy in West Point, N.Y.

Realignment

The company spent less than \$1 million to fund the 12-person planning group and 40 new multi-platform workstations needed for the new help desk environment, said Paul Pelotte, vice president of distributed computing and telecommunications at the US unit in Valley Forge, Pa.

"The target is to get the folks in Denver to handle as many of the [help desk] calls as possible," he explained. "It will cheaper to resolve a system problem over the phone than it is to dispatch a technician to do it."

The IS group is also taking advantage of the company's intranet to post information about technology upgrades or glitches that affect hundreds of users.

The company will add other help desk functions this summer, such as automated callbacks on problem files via telephony, electronic mail or its intranet home pages.

Best Western checks in with client/server

By Jaikumar Vijayan

In a \$15 million systems-modernization project, Best Western International is implementing a worldwide reservation system based on a two-tier client/server architecture.

The move is expected to generate an estimated \$44 million in incremental annual room revenue and reduced operating costs — such as training — for the group's members hotel worldwide.

The effort puts the group's reservation system on a par with others in the industry but doesn't give Best Western an edge over them, observers say.

"All this is commendable, but it doesn't give them any particular edge in the market right now," said Robert Langfield, principal associate at Langfield Fazio & Associates, a travel management consultancy in Incline Village, Nev.

"It is like, 'Congratulations on a job well done, but what's next?'" he said.

Best Western, based in Phoenix, has more than 3,500 independently owned and operated member hotels in 62 countries. Under the two-phase project, Best Western has just deployed a communications network called Lync at its central reservations offices in Wichita, Kan.; Phoenix; Milan, Italy, and Dublin.

Best Western properties in North America are connected to the reservations offices via two-way satellite communications from Hughes Network Systems. Inc. Internationally, properties are connected via a combination of AT&T Corp.'s frame-relay and virtual private network services.

Starting later this quarter, new Windows 95 PCs will be deployed at each of the member hotels. They will tie into the central system in Phoenix. All of the new components will be installed by this fall.

"What we are doing is playing catch-up with the competition," said Mary Swenson, vice president of worldwide reservations and sales. "For us, it was more of a competitive necessity than an option."

Best Western had been using the same mainframe platform for close to 18 years with few enhancements along the way.

"It was a good pony ... It served its purpose, but it needed to be replaced," Swenson said.

Baseline features of the new system include detailed guest histories, online packages and group booking capabilities.

Enhanced features include interactive maps to assist reservation agents in property location and selection. And to monitor employee productivity, the system features performance track-

ing modules and revenue-management tools. The system also features a new graphical user interface.

"It could ease the jobs of our reservation agents tremendously," said Don Setor, chairman of Sea Wake Resorts, Best Western, Aug 86.

Available soon

Best Western's new system is powered by two Unix-based Digital Equipment Corp. AlphaServer 6400 enterprise servers as an Oracle platform. When fully implemented, the system will hold closer to 17 bytes of data, support 4G bytes of memory and process 1.5 million "room-nights" and 15 million calls annually.



New menu at Pepsico

Fast-food division orders TM/1 tool

By Jacqueline Malloux

Those who analyze data to plot the future of Pepsico Restaurants International have a lot to their place. But at least the data is more accessible these days.

A reorganization last year brought fast-food restaurants Pizza Hut, Kentucky Fried Chicken and Taco Bell together in a single division and swelled the amount of financial data to be handled. The company has more than 3,000 stores in 29 countries from Hawaii to Morocco and handles 20 currencies.

"Suddenly, we came to an issue of how to handle a [huge] database which was not consistent in different markets and not consistent between Kentucky Fried Chickens and Pizza Hut," said Ernest Luk, Asia region planning manager for Pepsico Restaurants. And so the company began evaluating two online analytical processing tools — Singer Corp.'s TM/1 and Hyperion Software Corp.'s Hyperion.

"What we need is a central database to put together all the information that we gather from the different markets," Luk said. Specifically, Pepsico planners wanted to be able to drill down into financial data, consolidate different divisions' results, compare actual

"Suddenly, we came to an issue of how to handle a [huge] database which was not consistent in different markets and not consistent between Kentucky Fried Chicken and Pizza Hut."

— Ernest Luk,
Pepsico Restaurants



results to the forecasts and translate foreign currencies to U.S. dollars.

Although Pepsico Restaurants' U.S. headquarters uses Hyperion, the Asian headquarters decided to go with TM/1. Besides meeting business requirements, Luk said, TM/1 was selected because it was easier to get it up and running than Hyperion.

And Luk, as a finance professional and a self-proclaimed "no-computer guy," is pleased with TM/1's ease of use. "You just drag into the database and look at the numbers and try to make sense of it," he said.

Seven LAN workstations run TM/1 Version 2.0, including one at a remote location. TM/1 Spreadsheet Connector on the LAN allows users to share data.

Bugs in the system

To manipulate the TM/1 database, Luk uses Lotus Development Corp.'s 1-2-3 spreadsheet. But after using the LAN version of TM/1 with Lotus for about 10 months, he and his team have found some bugs.

For example, Luk said, there are difficulties when changing data using the cut-and-paste functions. "I would rather take my server down and then use the stand-alone version, do all the cut-and-paste, save the database and then put the server back up," he said. "I don't think I should do that, but because of the bugs, we have to live with that for now."

He noted that some of the problems are unique to running TM/1 with Lotus. When TM/1 was tested with Microsoft Corp.'s Excel, there were fewer difficulties, he said.

Malloux writes for Computerworld Hong Kong, from which this excerpted.

Corporate Strategies

MasterCard upgrade gives network a charge

By Kim Girard

During the holiday season, MasterCard International, Inc.'s global network bursts with credit and debit-card traffic. On just one December day last year, 16 million financial transactions chugged along the corporate electronic network, compared with about 10.5 million on an average day.

Because of the constraints of an aging network, MasterCard pays year-round for the bandwidth capacity needed to pull the company through the peak season.

But that's about to change.

Soon, with the boost of a transaction processing network upgrade provided by AT&T Solutions, MasterCard will have access to bandwidth on demand, global frame-relay services where available and, down the line, Asynchronous Transfer Mode (ATM). These services will come thanks to a new 10-year, multimillion-dollar contract with AT&T Solutions, which will design, build and manage the private virtual network for MasterCard. Work should be completed by the first quarter of 1998.

AT&T provides leased lines to MasterCard now, but MasterCard built the original network itself, using many different companies for hardware and software. MasterCard's network sprawls across 30 countries. It settles \$500 million per day in credit and debit-card transactions and supports

22,000 financial institutions.

The current X.25 network, built in 1983, runs smoothly but is antiquated and slow, according to Arthur Ahrens, senior vice president of operations and systems development at MasterCard in Purchase, N.Y.

"Fifty-six kilobits is pretty darn slow — even though we have T1," he said. "It gets expensive. It gets slow. You're running a network this big."

Analyst Alie Young at Datapoint in Westboro, Mass., said AT&T is a perfect strategic partner for MasterCard.

"There can be a real synergy there to drive new business opportunities," particularly in the field of electronic commerce, Young said.

MasterCard began looking overhauling its aging network two years ago, hiring several consulting firms to pick a suitable partner. It was looking for speedier data transfer, greater access to evolving services and technologies, global service options and an end-to-end management contract.

MasterCard's X.25 network now uses packet switching processors at 16 locations. From those locations, MasterCard con-

ncts to 1,500 member banks. Through the upgrade, MasterCard expects to save money and get a competitive edge as it will be able to provide its own services.

"We cannot use frame relay, and it's not possible to support ATM," Ahrens said. "These are the big ones because if you can't use those services, you obviously limit the network or limit yourself competitively."

The upgrade will give MasterCard a router-based network that provides TCP/IP to move data around rather than the proprietary protocols of the existing network.

AT&T was a logical business choice for many reasons, Ahrens said. MasterCard started working with AT&T in 1984 when the credit-card giant began building a network. Seven of MasterCard's nine packet switching centers are housed in AT&T facilities.

Andrew Mayer, a senior manager at Ernst & Young, a financial consulting firm, said the contract could help keep MasterCard on top. "The two [Visa and American Express] are both well-positioned within the marketplace, but this is very powerful," he said. "This could move MasterCard ahead."



MasterCard's Arthur Ahrens says the company's current network is slow, expensive and unreliable

Briefs

Infonet Services manages Exchange

Infonet Services Corp. in June will offer the Notice Server service, which runs on a company's Microsoft Corp. Exchange servers from Infonet's El Segundo, Calif., site. Geographically dispersed customers running Exchange don't have to assign one of their offices to route electronic-mail messages or distribute public folder information. Instead, users can choose a dedicated Exchange server for their business or share Exchange servers with trading partners. Price will be announced in June.

Health care support

Healthcare Partners Plaza, a Tyler, Texas, health maintenance organization, has hired Managed Computer Sciences Corp.'s MHS Managed Health Information System. Healthcare Partners, a start-up that began operations May 1, will run the CSC system on an IBM AS/400 platform.

Year 2000 services

Comdisco Disaster Recovery Services in Rosemont, Ill., has introduced Millennium Testing Services, under which compa-

nies can test their programs to determine the effect the year 2000 date change will have on their systems. The services support nearly 100 data platforms, including IBM and Unisys Corp. mainframes, Hewlett-Packard Co.'s RP 9000 systems and Digital Equipment Corp. VAX and Alpha systems.

SHL, ABT in deal

SHL Systems, Inc. has adopted ABT Corp.'s Repository technology under an OEM pact. ABT Repository links multiple work teams and allows shared-project reporting across an organization.

Best Western checks in

CONTINUED FROM PAGE 48

which owns three Best Western hotels in Clearwater, Fla.

For instance, once the system goes fully online, reservation agents will be able to instantly give customers detailed descriptions, including pictures, pricing and up-to-date availability, of Best Western properties anywhere in

the world. Because of this improvement, the system will allow Best Western property owners to better manage their room inventory, he said.

The availability of customer databases and online guest histories will also allow individual hotels to apply frequent guest discounts and track customer preferences worldwide.

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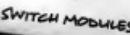
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Corporate Strategies

'net, outsourcing drawing banks' interest

By Thomas Hoffman
Palm Springs, Calif.

The banking industry is gingerly eyeing the Internet and IS outsourcing as ways to fight back against mutual fund companies and stock brokers.

"The financial industry is in a lot of trouble right now," said Abraham L. Nader, a senior vice president at Dollar Bank in Pittsburgh, who attended the IBM Banking, Finance & Securities Industry's 1996 Executive Institute here.



Lisa Wilson, Washington Mutual Bank. Our staff has a better opportunity with ISSC than they ever did with us."

As recently as 1980, 70% of all U.S. assets were kept in banks, according to Rita Turner, director of marketing of Wilmington Trust Co. in Wilmington, Del. Today, banks hold less than 25% of those assets, she said.

To help retain its niche position in a state where many companies choose to incorporate, Wilmington Trust plans to offer fee-based Internet banking services to commercial customers, Turner said.

And more banks are opting to outsource non-core information systems activities. Washington Mutual Bank recently signed a 10-year \$533 million pact with IBM's Integrated Systems Solutions Corp. (ISSC) unit to manage its help desk, network and desktop computing services.

The outsourcing deal "should help us move forward with technology and keep our [IS] staff current on new technologies," said Lisa Wilson, executive vice-president of corporate operations at the Seattle-based bank.

Wilson made sure that ISSC would hire the bank's IS staffers. "Our staff has a better opportunity with ISSC than they ever did with us. We're a bank, not a network management company," she said. She said she expects the bank to complete the outsourcing transition by year's end.

Bank of Boston recently rolled out an OS/2-based retail banking system to the first of its 300 branches. The move is part of a \$30 million systems integration deal with IBM that is expected to provide customer service representatives with better inform-

mation, said Stephen Starr, a project manager at the Boston-based bank.

Mercantile Bancorporation Inc. in St. Louis has acquired more than 20 banks since 1990, helping it increase its profits from \$57 million to \$217 million last year.

said Ronald G. Schwartz, vice president of acquisitions/product management.

In 1994, during an acquisition tussle, the bank halved its 24-person applications conversion staff. Soon after, Mercantile acquired three more banks.

Rather than ramp up its internal staff, Mercantile selected ISSC to handle the bank conversions. The move enabled Mercantile to make the conversions on time and for 25% less than if it did the work itself, Schwartz said.

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Great media's role in how leading companies are making money, saving money, and creating a competitive advantage. CD-ROM, multimedia, and hybrid CD-ROM/multimedia integration. The seminar covers from case studies and real-world examples of improved information delivery. You'll learn about widely-used applications of CD-ROM and multimedia interactive technology, and see detailed demonstrations of the best examples from corporations and publishers from around the world - including hybrid applications of CD-ROM and multimedia. You'll also learn about the new Intranet. CD-ROM and multimedia can benefit your organization. In just a few short hours you'll learn how to get started quickly and smoothly, and determine the best development regimen.

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• How can our organization use new media?

• What are our available options?

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SUMMER PROGRAMS
for IS Managers, page 94
IS Manager's Bookshelf, page 96

Managing

Chief Information Officer Byron Baker found himself in trouble last year because he didn't speak the language of finance. But he was able to pull himself out with a few simple words of English — he asked for help.

Not only did Baker face 1996 information systems expenditures that would be nearly twice those of last year's budget, but he also would have to stand up to his CEO's scrutiny by himself. In the past, Baker had reported to a chief financial officer, whose word on financial matters usually wasn't questioned. Without the CFO as a buffer, Baker would have to defend cost justifications, purchasing decisions and project tracking information on his own. But the technical and project management experience that had landed him his job hadn't prepared him to speak the financial language of the CEO.

Common problem

Baker's dilemma isn't unusual among CIOs. It's often said that to be accepted as part of senior management, CIOs need to be fluent in accounting and finance. Few of them know the language, and it's killing them.

"One of the things that continues to plague the information technology industry is this barrier between the language that IT uses and the dollars and cents language the rest of the company uses. IT people get talked down to in companies because they lack the financial talk," says Ron Brzezinski, a former CIO who now runs Transformation Associates, an IS management consultancy in Chicago.

That was true for Baker. The 35-year-old has been at Dataverv nine years, first as an applications manager, then as IS director. He became CIO four years ago. The financial knowledge he has is what he has picked up accidentally along the

Can techies learn the lingo of accounting and finance? You bet, when . . .

You've got a friend

By Steve Alexander

aren't that good with finance," he says.

Luckily for Baker, Gary Mainor, Dataverv's president and CEO, understood the problem. "I don't think you find many MIS people that necessarily come in trained with budget and fiduciary skills," Mainor says.

Mainor saw that his CIO was in an impossible situation, caught between the CEO and the business unit managers. On

ported to the CEO for several months that Baker realized he had to ask for help.

For seven years, Dataverv had pioneered the idea of "financial business partners" — finance department managers who are placed in other divisions to help managers improve their financial oversight and reporting skills. In most cases, the financial partners are ranked lower than the business executives they advise.

In the process, he could improve his credibility by overcoming the perception that IS managers aren't business literate.

There was no downside in asking for help. In Dataverv's team-oriented corporate culture, managers gain points for teaming up with others if it will make their own group more effective.

Mainor approved. He thought it would help him learn what he was getting for

“IT people get talked down to in companies because they lack the financial talk.”

way. Dataverv is an outsourcing services firm in Minneapolis that has been owned by BellSouth Corp. since 1987. It has 1,250 employees. Wang Laboratories, Inc. on April 10 announced it would acquire Dataverv.)

Baker began to report to the CEO in late 1994 when a systems conversion and the installation of several new systems caused a big jump in IS spending.

The new arrangement forced him to deal with "the perception that IT guys

the one hand, Mainor needed specific reports on investment (ROI) information about IT spending. On the other hand, the managers needed to justify — sometimes harshly — IT investments so they could pursue their business plans. Baker was the middleman, often forced to accept business unit ROI projections on faith, then having to take the heat when those ROI results didn't materialize.

"That's a no-win situation for an IT guy," Baker says. It was after he had re-

ported to the CEO for several months that Baker realized he had to ask for help.

Five years ago, they didn't ask financial questions like that. They just looked at how to provide service, not how to provide service profitably," Woodard says.

Baker thought a financial business partner could help him sort out business unit ROI claims.

his IT dollar in ROI terms. A financial business partner also would pressure business unit managers to come up with good ROI figures for IT investments.

So early last year, Mainor assigned to Baker a business partner from the financial department. That arrangement didn't work out because the partner, a relatively junior finance official, knew too little about information technology.

Baker then asked Mainor to appoint Woodard as his business partner. Woo-



www.BRRRRRL.com

Talk about worldflier: From his office in Austin, Texas, Philip Brenan helps manage a team of programmers he's never met, in a place he's never been. The place is Siberia, and the preferred mode of communication is the Internet.

Brenan, president of venture capital firm Transcendental Automation, drums up business in the U.S. from start-up software companies that can't afford the \$50 per hour charged by domestic programmers. His partner, Vladimir Vaschenko, oversees nine full-time and about 20 part-time programmers in a university town near the Siberian capital of Novosibirsk.

"The Russians are skilled in Unix, Windows, C, and C++, Brenan says, and have developed code for some tasks as PC-to-mainframe connectivity.

Brenan, a long-distance programmer, and Vaschenko of the Institute of Mathematics of the Siberian Branch of the Russian Academy of Sciences, have sold contract programming since February 1993.

Revenue is well under \$1 million per year, but the business is profitable, and revenue should grow solidly this year, Brenan says.

He acknowledges that 20% to 30% of his deals fail in the first month because of communications breakdowns between customer and programmer.

He says he's learned that electronic mail works better than the telephone because the Russians read and write English better than they speak it. Written comments also produce records for both sides to reference and force the writers to think through their messages.

The Russians struggle with winter temperatures of 40 degrees below zero Fahrenheit and earn approximately \$5 per hour, a 10th of the wages of their U.S. counterparts, but live times the average for Russia, Brenan says.

But he warns against pitying the Russians, who see their work "as a means of making their country a wonderful place." The Russians are so skilled, in fact, that he tells them, "In 10 years, I'll be coming to Siberia to ask you for a job."

— Robert L. Scheier

had previously had worked for a company that managed databases used in direct marketing. He understood the language of IT as well as the language of finance.

Maison and Woodard liked the idea.

The treasurer says he felt IS could benefit from the business partner concept. Dataaser's bottom line also would benefit.

Among the questions Woodard routinely asks business units are the following: Exactly how much revenue are we going to get for this IS project? Is it pie in the sky, or do we have a customer today?

Before Baker got a business partner, information technology projects often took 25% to 30% longer than expected and cost 15% to 20% more than projected.

do a better job of corporate budgeting and seeking approval for information technology spending plans.

Maison says there's no question the Baker/Woodard business partnership works.

Before Baker got a business partner, information technology projects often took 25% to 30% longer than expected and cost 15% to 20% more than projected.

Ron Brzezinski, Transformation Associates, Chicago

"If we can save a half a percentage point of our cost of sales, we might be talking about half a million dollars," Woodard says.

In the middle of last year, Woodard became Baker's partner. He quickly took over the role of bad guy from Baker and decided which business units had made ROI claims that justified the IS projects they wanted.

The treasurer, in the dual role as Baker's teacher and helper, instituted a

three-part approach: Check the ROI justification for projects, decide whether a needed IT product or service should be obtained in-house or outsourced, and track the progress of the project.

Baker says it helps to have Woodard along to ask questions in IT project meetings with divisional executives. "That's an invaluable asset," he says.

Woodard also teaches Baker how to

These days, those same projects "are being delivered on time and pretty much on budget. If there are any variances, we know what they are and why."

And Baker is learning the language of finance. Woodard says, "Byron's starting to ask me questions he wouldn't have known to ask before because that's how an information technology person would talk," he says.

Alexander is a freelance writer in Edina, Minn.

Executive Education

Summer school days

**Feeling studious? IS managers
of executive education programs**

Compiled by Leslie Goff
Listings are alphabetical.

Achieving Excellence in IS
American Management Association (AMA)
Learn to use total quality management techniques to align information systems with corporate strategy; reduce development cycles and improve productivity.

Location/Dates: Washington, May 29-31

Fee: \$1,605 (nonmembers) or \$1,395 (members), including tuition and materials

Contact: AMA, 1601 Broadway, New York, NY 10019; (800) 262-9899; E-mail: cost_serv@amana.org

Current Issues in Managing Information Technology: Redefining IT Competencies for the Information Age
Center for Information Systems Research (CISR), Sloan School of Management, MIT
Eight general sessions, 14 electives, a chief information officer panel and special interest groups will emphasize developing and maintaining a process-focused, team-based, learning-oriented organization.

Location/Dates: Hyatt Regency Cambridge, Cambridge, Mass.; June 17-20

Fee: \$2,750, including tuition, materials, lunches and special events

Contact: CISR, Building E40-193, MIT, 77

Massachusetts Ave., Cambridge, Mass.
02130-4307; (617) 253-2348

Delivering Information Services
Harvard Business School

Case studies, small study groups, discussions with top IS executives and lectures by Harvard faculty will facilitate ideas for building and managing a competitive IS infrastructure.

Location/Dates: Harvard Business School, Boston; July 14-26

Fee: \$9,000, including tuition, books and materials, accommodations and most meals

Contact: Executive Education Programs, Harvard Business School, Soldiers Field Road - Glass Hall 200, Boston, Mass. 02163-9996; (800) 427-5577, ext. 423; Fax: (617) 495-8999; E-mail: executive_education@hbs.edu; World Wide Web site: <http://www.ased.hbs.edu/>

Disaster Recovery Planning: Ensuring Business Continuity
AMA

Build a strategy based on contingency planning concepts and learn how to sell it to top management.

Location/Dates: San Jose, Calif.; June 27-28



Harvard Business School offers a 13-day program in building a competitive IS infrastructure in July

Fee: \$1,375 (nonmembers) or \$1,195 (members), including tuition and materials

Contact: See Achieving Excellence in IS

Executive Program for Growing Companies
Graduate School of Business (GSB), Stanford University

Course includes four IS-related sessions: Planning for IS, Business Impacts on IS, Re-engineering with IS and Strategy for IS

Location/Dates: Graduate School of Business, Stanford University; July 21-Aug. 2

Fee: \$9,200, including tuition, materials, accommodations and meals

Contact: Alyce Adams, GSB, Stanford University, Stanford, Calif. 94305-6024; (415) 723-9356; E-mail: adams_alyce@gsb.stanford.edu; Web site: <http://www.gsb.stanford.edu/seip/sep95a.html>

Global Information Management: New Concepts, Tools and Strategies
Carnegie Mellon Executive Summer School, 1996

Investigate how the convergence of broadband networks, wireless technologies and the Internet can effectively address business problems and provide competitive advantage.



MIT will host a course for chief network officers May 20-24 and a multi-institution conference on Redefining IT Competencies for the Information Age June 17-20

Location/Dates: Graduate School of Industrial Administration (GSA)
Executive Classroom, Carnegie Mellon University, Pittsburgh; July 30-Aug. 1

Fee: \$1,750, including tuition, fees, books and materials, most meals and special events

Contact: Clark Jordan, director of executive education, GSA; (412) 268-2304; E-mail: cjordan@andrew.cmu.edu; Web site: <http://www.gsa.cmu.edu/executive>

Managing Technology and Innovation
Anrey Institute of Executive Education, Wharton School of Business, University of Pennsylvania

Examine the relationship between technology and strategy and how innovation can drive company progress.

Location/Dates: Anrey Institute of Executive Education, University of Pennsylvania campus, Philadelphia; June 16-21

Fee: \$4,550, including tuition, materials, accommodation and meals

Contact: Executive Education Department course consultants, (800) 255-3932; E-mail: execed@wharton.upenn.edu; Web site: <http://www.wharton.upenn.edu/>

Managing Telecommunications: Technologies Your Company Can't Be Without
AMA

Explore advanced technologies, acquisition and implementation management, and staffing issues related to telecommunications.

Location/Dates: New York, May 23-24; Boston, Aug. 19-20

Fee: \$1,435 (nonmembers) or \$1,250 (members)

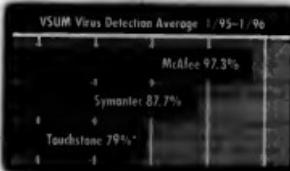
Contact: See Achieving Excellence in IS

The MIT Executive Short Courses for Chief Network Officers: Managing the IT Infrastructure for Global Competitiveness
Claas School of Management, MIT
Lectures by MIT faculty, group discussions, Summer school, page 96

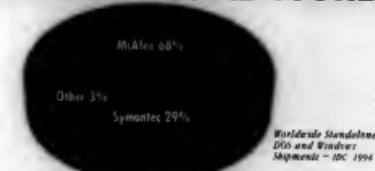
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"Symantec's Little Fib" - Information Week, 9/11/95

A lot of people disagree with Symantec's claim that they have the best virus protection. Even some Symantec people.

Vice President of Desktop Utilities, Ellen Taylor, said "we...regret any misconception..." that resulted from Symantec overstating its detection rate. *Information Week* described it as "Symantec's Little Fib."

The *San Jose Mercury News* added that "Symantec, with NCSA's urging, has acknowledged that it may have exaggerated a bit..."

Another Symantec ad misleads readers by comparing their desktop anti-virus product with McAfee's WebScan for the Internet.

Advertising aside, just how good is Symantec virus protection? VSUM tests over the past year show that Symantec detected less than 88% of all viruses while McAfee VirusScan caught over 97%.



"Morton's chicken soup not as foolproof as advertised"

- San Jose Mercury News, 9/15/95

Maybe that's why McAfee virus protection is trusted by over 10 million users. More than all others. And maybe that's why 80 of the Fortune 100 trust McAfee's products.

To find out for yourself, just download any fully-functioning McAfee product. There are no encryptions or time bombs. We trust you to pay us if you decide to keep it. After all, virus protection is a matter of trust.

And now that you have all the facts, we trust you'll decide on McAfee.

For more information on McAfee products, including our on-line technical support, call 1-888-VIRUS NO toll free.

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Executive Education

Summer school

CONTINUED FROM PAGE 94



Carnegie Mellon University offers a global Information management program July 30-Aug. 1 (see page 94)

case studies and exercises will consider the role of the chief network officer as a supplier of corporate strategy and 21st-century IS management techniques.

Location/Dates: Cambridge, Mass., May 20-24

Fee: \$4,600, including tuition, materials and most meals

Contact: Elizabeth Martin, MIT Sloan School of Management, 50 Memorial Drive, Room E52-101, Cambridge, Mass. 02142-1347;

(617) 253-7166, to inquire about course content, contact Jeanne Ross, (617) 253-9461 or jross@mit.edu.

Strategic Information Systems Planning American Management Association

Sample case studies and other exercises focus on planning methodologies, how to perform situational assessment and setting the future direction of IS.

Location/Dates: Chicago, June 3-5; Johns Island, S.C., June 26-28; Williamsburg, Va., Aug. 19-21

Fee: \$1,550 (nonmembers) or \$1,350 (members), including tuition and materials

Contact: See Achieving Excellence in IS

Strategic Uses of Information Technology Stanford University

(Wait-list only.) Class lectures by Stanford faculty and Silicon Valley gurus and group discussions will cover how to integrate information technology, operating procedures and staff into a competitive force.

Location/Dates: Graduate School of Business, Stanford University campus, May 12-17

Fee: \$5,000, including tuition, materials, accommodations and meals

Contact: Adeline Curry, GSB, Stanford University, Stanford, Calif. 94305-4024; (415) 723-7552; E-mail: curred@gsb.stanford.edu; Web site: <http://www.gsb.stanford.edu/sep/sept95.html>

INDUSTRY-SPECIFIC PROGRAMS

Education

**CAUSE Management Institute
Information for Managing and Using Information Resources for Higher Education (CAUSE)**
Location/Dates: Boulder, Colo.; The Director Program, June 9-13; The Manager Program, Aug. 15-19

Fee: \$1,725 (nonmembers) or \$1,550 (members); including tuition, materials, accommodations and most meals; add \$200 for a single room; subtract \$200 if providing your own lodging.

Contact: Chris Vinsat, CAUSE Management Institute Register, 4840 Pearl East Circle, Suite 302, Boulder, Colo. 80301-6114; (303) 939-0317; fax: (303) 440-0481; Web site: <http://cause-www.colorado.edu/>

Government

**Advancing the Art of Fraud Control:
Protecting Public Payment Systems
Strategic Computing and Telecommunications in the Public Sector
John F. Kennedy School of Government,
Harvard University**

Location/Dates: The Trumbull Center, Harvard University, Cambridge, Mass., May 30-June 31

Fee: \$660 (public agencies) or \$1,350 (private firms), including tuition, materials and most meals

Contact: Kate Gould, Strategic Computing and Telecommunications program, Harvard University, 79 JFK St., Cambridge, Mass. 02138; (617) 495-1200; E-mail: kate_gould@harvard.edu

Manufacturing

**Program for Manufacturing Excellence
Carnegie Mellon Executive Summer School, 1996**
Location/Dates: GSIA Executive Classroom, Carnegie Mellon University, Pittsburgh; June 2-7

Fee: \$2,750, including tuition, fees, books and materials, most meals and special events

Contact: See Global Information Management: New Concepts, Tools and Strategies

Goellin is a freelance writer in New York.



IS Manager's Bookshelf

5th Generation Management: Co-Creating Through Virtual Enterprising, Dynamic Teamwork, and Knowledge Networking (Revised Edition)

By Charles M. Savage

(Butterworth-Heinemann, Newton, Mass.; 241 pages; \$17.95, paperback)

Even though Tom Peters named 5th Generation Management his business book

of the year when it first was published in 1993, it didn't get much notice. Savage, a former Digital Equipment Corp. consultant, was probably ahead of the times. But the

recently revised edition of the book should find the larger audience it deserves, now that such concepts as virtual enterprises and knowledge management have caught on. Though it begins with a 90-page case study of an imaginary company that some will love and others will find off-putting, the book is a genuine mind-stretcher for any forward-thinking information systems manager.

— Allan E. Alter

Engineering Your Writing Success: How Engineers Can Master Effective On-The-Job Communication Skills

By James E. Vincler and Nancy Horlick

(Professional Publications, Inc., Belmont, Calif.; 300 pages; \$29.95, hardcover)

The conventional wisdom is that engineers hate to write, and shouldn't, because their logical, methodical minds turn out lifeless prose. The Vinclers, who are professional writing coaches, offer a wealth of tips on writing different types of reports, proposals, data sheets and query letters; they also include a section on leading meetings. The tone is logical, detailed and no-nonsense — just right for the target audi-

ence. — Robert L. Scheier

Virtual Selling

By Thomas M. Siebel and Michael S. Malone

(Simon & Schuster/The Free Press, New York; 248 pages; \$26, hardcover)

Why hasn't sales force estimation met its full potential? The authors of *Virtual Selling* have an answer: Much of the time it's used to control salespeople and capture

data, not to make sales organizations more effective. The book is full of innovative ideas on how to use technology to sell, sell, sell, taken from real-life examples. Just think twice before you share it with your buddy in sales; it includes sales techniques that may make road warriors superfluous (such as giving farmers Apple Newtons so they can order fertilizer directly from their fields, as Monsanto Co. has done). — Kay Carstens

Human Performance Engineering: Designing High Quality Professional User Interfaces for Computer Products, Applications and Systems (3rd edition)

By Robert W. Bailey

(Prentice Hall PTR, Upper Saddle River, N.J.; 456 pages; \$39, hardcover)

If you're under a tight project deadline and want quick tips for improving user interfaces, this is not — repeat, not — for you. This is a dry, rambling tome that covers everything from brain structure to the proper height of chairs, while managing not to provide examples of good interfaces from existing systems. The tiny print, lack of color illustrations, disorganized presentation and textbook-style writing are especially annoying, considering this book is supposedly about creating quality interfaces. — Robert L. Scheier



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From child pornography to counterfeiting to murder, investigator Frank Clark has seen it all. He offers IS tips on handling security, scams and hackers.



In Depth

the long arm of The Law

By Steve Alexander

FRANK CLARK works the dark side of cyberspace, dealing with hackers, online sex criminals and killers. During his years as a police investigator in Fresno, Calif., he won renown as one of the country's leading computer law enforcement agents when he captured an online pedophile and found key murder evidence hidden on a computer disk.

Now a criminal investigator for the Pierce County prosecutor's office in Tacoma, Wash., Clark specializes in white-collar and computer crimes. He also teaches at the Federal Law Enforcement Training Center in Glyncro, Ga., and the Canadian Police College in Ottawa.

Does Frank Clark have anything to teach information systems professionals and managers? Oh, yes.

The law, page 100

The law

CONTINUED FROM PAGE 99

CW: How worried should IS managers be about employees committing cyber-crimes?

Clark: About 80% to 85% of computer crime losses are caused by insiders. Very often they're committed by the lowest paid people who have the lowest investment in the business. Sometimes they're committed by data processing folks who have the greatest computer access.

CW: What should IS managers look for if they suspect an employee of being a cybercriminal?

Clark: There is nothing about these people that makes them easy to identify. What we have seen are employees who seem to be very motivated and spend a great deal of time, even unpaid time, working on a computer. Usually they are people who have a grudge because they have been overlooked in the business or passed over for promotions. Often they exceed their authority. They help others to use the computer, and in doing so, gain access to parts of the computer they would not have access to in their jobs.

CW: What should IS managers do if they suspect employees of abusing the company system?

Clark: Get rid of them as quickly as possible. And never hire people who illegally entered or used [your organization's] computer system to help the company patch security holes. I've never seen it work. Quite the contrary; I've seen companies get beat up for doing it.

About five years ago in Fresno, some hackers got into the Cellular One cellular phone company and used voice-mail boxes to exchange stolen credit-card information. The company tried to use some of the hackers to firm up its security leaks, but all the hackers did was learn more about the computer system so they could abuse it to a greater extent. The basic morale and ethics of people don't change.

CW: What should IS managers do to keep from being taken advantage of?

Clark: Limit who has access to files and directories. Conduct regular security procedures, like having off-site backups, changing passwords every 90 days and not letting people use the

computers or passwords of others. And don't let employees post their passwords on little yellow stick-up notes. I can't tell you how many times I've gone through corporations where people had their passwords posted on their monitors.

Also, put a message on your system letting people know that if they exceed their authority on the system, they will be prosecuted. The system at the city of Fresno was compromised by two

"Information about how to illegally use credit cards, break into computers and misuse the phone system is being so rapidly disseminated that we're seeing an explosion. And it's going to get worse." — Frank Clark

people who read other people's E-mail about union negotiations. They were terminated, but the district attorney wouldn't prosecute because there were no messages on the system that said E-mail was confidential or illegal use of the system would be prosecuted.

CW: If an IS worker is hacking from the employer's system, what kind of liability does the employer face?

Clark: That's a gray area. We don't have much case law dealing with computer thefts, piracy and hacking yet. But even if it's not a criminal problem, it could be a civil lawsuit problem. We had a major pornography bulletin board being run on a Fresno hospital computer system unbeknownst to the system's managers. What kind of civil liability would the hospital have if young children were getting pornography off the hospital computer?

CW: What problems do cybercrime investigators face when dealing with business?

Clark: Most computer crimes go unreported. Businesses are reluctant to report them because they lack confidence that law enforcement will investigate and prosecute the crimes successfully. Their second concern is damage to their business reputations if they report the crimes.

nal expertise and thus become experts in thefts. Information about how to illegally use credit cards, break into computers and misuse the phone system is being so rapidly disseminated that we're seeing an explosion in those types of activities. And it's going to get worse.

CW: What are some of the more interesting cases you've been involved with?

Clark: We had a pedophile bulletin board in Fresno that had advertisements looking for people under 18 to have sex with. I logged on and played the role of a 15-year-old boy. I was immediately hit on by the bulletin board operator, who sent me pornography and wanted to have a date. We sent a young police cadet we had wired for sound to meet him and arrested him. We later found he had kept records on his bulletin board of his membership and their activities.

CW: What about the murder case in which you found evidence on a disk?

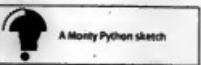
Clark: The victim and her husband owned a computer store in Fresno in 1994. She was pregnant and supposedly was at home doing the business' books at the time she disappeared.

The husband was in a 12-step drug rehab program in which the fourth step is to admit all your wrongdoings. We thought she found what he had written down for this step before she disappeared. A few days later, we got a search warrant to search the house and found her body wrapped in plastic with chemicals to control the smell.

We seized the computer in the home and looked to see if she really had been sending business records to the office on the days when she was supposed to be working at home. The software showed no activity during the 10 days she was missing.

We didn't find the husband's drug rehab files on the computer, but eventually we got the disks containing them from his attorneys. The files he wanted had been deleted, so we hired a Macintosh engineer who restored the files. The files showed that as part of the fourth step, the husband had admitted spending \$35,000 on prostitutes and cocaine over one weekend. That's what the wife had found on the night she was killed. The husband was convicted of murder. ■

Alexander is a freelance writer in Minnesota.



A Monty Python sketch

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DEPARTMENT/Management

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Computer Careers

Damn, they're hot!

After five years, C++ programmers still have the world by the tail

By Lynn Haber

C++ programmers.

Organizations simply can't get enough of them. Hiring managers will pay top dollar for them. And while C++ skills have been hot for about four or five years, the demand now is positively sizzling.

"Information systems employment is hot across the board, but C++ is the hottest of the hot," says Stephen McMahan, managing director at Source Services Corp., an employment recruiter in Boston. Demand is strong in all industries: financial, manufacturing, distribution and high technology. Here's a sampling from the Boston market:

Name your price

"We'll offer \$80,000 to \$120,000 for someone with the right skill set."

At John Hancock Mutual Insurance Co. in Boston, Richard Atkiss has been actively seeking C++ professionals for the past year. As resource manager, Atkiss works with a dozen local recruiters and maintains contacts with more than 60 others in his pursuit of this elusive talent.

Atkiss works in the investment and pension sector of the company, which is pursuing its first large object-oriented development project. Throughout

last year, John Hancock worked with C++ contractors to keep the project rolling, but this year, the company wants to hire full-time C++ talent to lower costs by some 40% and to create an in-house knowledge base.

The bottom line is that the market just isn't there," Atkiss says. He says he has even had people just out of college turn down salary offers of \$60,000 to \$65,000.

Gimme, gimme, gimme

"In the course of a month, we get [more than] 1,000 requests for C++ professionals."

McMahon says the staff at Source Services can't keep pace with the requests for C++ professionals that come in to the recruiting office regularly. It's a similar tale at Source Services' St. Louis office, where 200 requests for C++ programmers pour in monthly.

"This area of the country was a bit later than others getting on the client/server bandwagon," says Jack Deck, managing director at Source Services in St. Louis.

In Boston, with the exception of the retail industry and the Department of Defense, which are experiencing tough financial times, McMahon says that most industries are looking for C++

skills, and Visual C++ is the most in demand.

Whatever it takes

"We use our own employees as a resource source and pay bonuses for helping to find C++ talent."

Demand for C++ programmers has gone through the roof, the way Sue Rice sees it. As senior vice president of human resources at State Street Bank in Boston, Rice has had to get very flexible with job terms and work schedules to attract new C++ hires. "Supply can't keep up with demand," she says.

An organization with 12,000 employees worldwide, State Street currently has 265 C++ programmers on staff, but the bank wants to hire an additional 15 this year. The company uses recruiters in its quest for C++ talent. Other sources include newspaper advertisements, the Internet, career fairs and universities.

"Ideally, we're looking for full-time C++ employees, but we can be creative in their people's schedules." Rice will offer salaries up to \$75,000, depending on experience. ■

Haber is a freelance writer in Norwell, Mass.

Long-distance learning

The state of IS education abroad

By Eli B. Cohen

This week, Computerworld starts a series by Eli B. Cohen and Betty Boyd on comparing challenges and information systems education in various countries and the fun of making Internet contact abroad.

We are making our way around the world, representing the Association for Computing Machinery's computer science education group, interviewing people to find out more about how culture and location influence IS education. Ultimately, what we find will influence the development of IS curriculums and IS courses.

Along the way, we are discovering more than we ever wanted to know about gaining Internet access on the road. Indeed, we are learning not to take anything for granted.

Fiji

In Nadi, Fiji, our plan to check electronic mail was foiled; the hotel room had no telephone. Indeed, the phone directory for the whole country of Fiji is quite thin. Our accommodations at the University Lodge in Suva had a

phone, but I never did connect via modem. Instead, I was able to make a direct Ethernet connection from my computer to the Internet via the University of the South Pacific campus connection. I downloaded my @ awaiting messages from the point of presence server in about two hours. That isn't a misprint.

IS education at the University of the South Pacific developed around its own opportunities and constraints. IS isn't given the same level of resources in the South Pacific as are more important majors, such as tourism and home economics. In one case, a professor who taught a course on microcomputers in the island nation of Vanuatu used his housing allowance to hire a computer lab tutor so the lab could stay open for his students.

Hans Daoud, head of the IS at Fiji's Post, Telephone and Tele-

graph (PTT) told us that PTT provides individuals and businesses with Internet access, but such access wouldn't be as simple as dialing a local number. In Fiji, Internet access isn't yet common.

New Zealand
In Auckland, New Zealand, Lech Janczewski, a lecturer at the University of Auckland, helped us get our E-mail. He says Internet access in Auckland is sporadic, ranging in speed from almost instantaneous to painfully slow. New Zealand has an outstanding IS curriculum.

In New Zealand, IS isn't as business-oriented as it is in the U.S. and typically is housed in the college of informatics with the departments of computer science and telecommunications. Unlike Fiji, IS is well recognized as important to the future of the country. Russell Bugden, head of the IS

department at Manawatu Polytechnic in Palmerston North, says Manawatu's curriculum was developed as a mast program. The faculty found out what employers needed from their graduates and designed the courses to meet the employees' needs.

The most impressive part of the trip so far was our visit to the University of Otago, at the remote tip of New Zealand. Here the faculty of informatics occupies three full floors of offices in a modern building. There appears to be a synergy with IS being taught alongside computer science. I wonder if some business focus is lost. But at least I was able to pick up my E-mail without any problems. ■

Cohen is a professor of IS education. He can be reached through the Web page on global IS education at http://www.acm.org/el_cohen/globis.htm or e-mail at Eli_Cohen@acm.org. May 6, 1996 COMPUTERWORLD

It's gonna cost you

Hiring managers can expect to pay sizable salaries to attract C++ professionals (2-5 years experience)

West Coast	\$70,000
Central	\$65,000
East Coast	\$70,000

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Have a global impact on technology

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Engagement Management

Several positions are available for the challenges of managing resources and execution delivery, account offices, providing pre-technical and design support, and managing client relationships. This includes preparing proposals and supporting the customer both before and after sales, tracking application travel. Your 5+ years experience should include:

- Strong communication and interpersonal skills
- CICS, COBOL application development
- Background on vendor or consultant

MVS Application Integrators

Your skills will drive the host-based migration of a client/server architecture for a utility application using mainframe and distributed technologies and client/server environments. This 5+ years experience should have a C/C++ and OS/2 front end and driving a MVS, CICS, DB2 and COBOL back-end, and we believe it represents the future in the dramatically changing utility industry. Strong analytical and communication skills. Your 5+ years experience should include:

- C/C++, COBOL, E, TSO, CICS, AS/400, RJE and DB2 in an MVS environment

Application Integrator

To help us provide solutions to our banking and financial industry clients, you will act as a master and technical resource for object-oriented development using EIFFEL and Smalltalk development tools, as well as client/server and distributed systems models and participate in coding and testing. Location is in the heart of Chicago; you'll be involved from its early stages and major milestones.

Your 3+ years experience, which preferably includes a background in banking with customer service responsibilities, should also include:

- EIFFEL, Smalltalk, Windows, Windows NT, DB2, COBOL, C
- C/C++, MVS UNIX, COBOL, Eiffel

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Database Architect

As a member of the team developing a 3.5 million line client/server application for the utility industry, you will design host DB2 architectures. To help solve this exciting challenge, you'll need 5+ years experience including:

- CBL, SQL, QMF and CICS in an MVS environment

Client/Server Programmers

To help create an advanced client/server application for the utility industry, you will be working with a team to migrate existing mainframe information systems, including the areas of billing, budgets and forecasts, loadlists, dispatch and scheduling, and adjustments. Inventors and changes in existing C programming skills, your 5+ years experience should include:

- Strong analytical and communication skills
- C/S/PM or Windows NT
- DB2, SQL, QMF and CICS on an MVS platform

Programmer Analyst

Put your experience driving major conversion efforts from flat files or DB2 to DB2 as a host programme using C/C++, COBOL, CICS, SQL and DB2. You will be working with a team to migrate existing mainframe information systems for the utility industry. Your 5+ years experience should be well rounded, and would ideally include:

- Large customer information systems
- C/C++, COBOL, MVS

Technical Architect

Working directly with clients, you will communicate client/server requirements, answer questions relating to performance and capacity to help market a large client/server application. In addition to strong customer service skills gained through 5+ years experience, your technical background should encompass:

- Oracle, Sybase and Informix
- CICS, DB2, SQL, QMF and COBOL in an MVS environment
- DB2 or Windows NT express

DB2 Database Administrator

In addition to maintaining database structures and providing database support, you will be a technical resource in our development staff, requiring significant COBOL and CICS understanding. Your 5+ years experience should include:

- DB2, RJE, Backslash Tel Set, JCL and RFP

Processor Control Clerk

Identifying the company which services will be your primary responsibility, supporting the development of a very large client/server application. To be successful your experience should include:

- CBL, SQL, QMF, COBOL, JCL and RFP in an MVS environment

Application Programmer

An lead architect for various projects in the health care industry, you will write requirements as well as plan and manage all development activities, including providing both technical and management leadership to a group of programmers. Your experience should include:

- Experience in one or more of the following areas: C/C++, COBOL, Fortran, PL/I, COBOL, CICS, DB2, OS/2
- Excellent communication and customer service skills
- Software testing

Programmer Analyst

You will support corporate applications for a utility requiring automated data processing. To meet the challenges of the position, your experience should include extensive mainframe skills, application design and application development experience, including:

- C or C++
- PL/I
- FORTRAN, JCL, COBOL, ASSEMBLER, COBOL, CICS, DB2, OS/2

VT Specialists

We're searching for a group of specialists with varied skills to guarantee we provide a winning solution. Analysts may come from a wide range of disciplines and backgrounds, including experience in areas of Information Technology. Test will be required, and to deliver the right solution, at the right time, on budget. You'll need a background in some of the following areas:

- AS/400
- COBOL, DB2, MVS
- DB2
- COBOL
- COBOL programming, Novell
- C, C++, PowerBuilder and Visual Basic

All positions require a degree or the equivalent and superior communication, analytical, and teamwork skills.



Regional Scope: Boston

It's awesome heah!

By Julie Hart

Worth the trip?

What IS professionals can expect to earn in Boston:

**Assisted entry
Computer programmers**

Low level	\$32,600
Mid level	\$39,500
High level	\$46,000

Computer systems analysts

Low level	\$47,700
Mid level	\$56,600
High level	\$68,600

Computer systems analysts/ supervisors/managers

Low level	\$63,500
Mid level	\$75,700
High level	\$88,000

Computer operators

Low level	\$24,100
Mid level	\$29,200
High level	\$37,100

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Boston

What's up?

Boston is one of the country's leading historic and cultural cities. Among its many offerings:

ATTRACTIONS
The Freedom Trail
Boston Computer Museum
The Children's Museum
Museum of Science
New England Aquarium

CULTURE
Boston Symphony Orchestra
The Boston Pops
Boston Ballet
The Museum of Fine Arts

SPORTS
Boston Marathon
Boston Bruins
Boston Celtics
New England Patriots
Boston Red Sox

Boston is known worldwide for many things: the Marathon, the Massacre, the Tea Party, the Stranger and, in past seasons, its great sports teams.

It's also the hub of one of the nation's premier high-technology job markets. And unlike the Red Sox management, job seekers in Boston can say that things look very good indeed.

"High tech is booming in the Greater Massachusetts area," says Gil Lawrence, manager of human resources at Information Access Co., an information and text-retrieval company in Medford, Mass.

The Boston market can be separated into three categories: "financial services, high technology and defense," says Kevin Steele, president of Winter Wyman & Co., a recruiting firm in Waltham, Mass.

Defense has fallen off, and high technology now is Boston's shining star.

But Boston also boasts leaders in the academic, health care and financial services industries. The result in high demand for talent and often high salaries. That's making it difficult for many hiring managers to compete.

"We're often looking for people with client/server skills," says Michael Hermon, chief information officer for the city of Boston. But because the private sector typically pays 25% to 33% more than the city can afford, it's tough for it to find qualified candidates.

The skill sets most in demand include Sybase, Inc./SQL Server

and Powersoft Corp.'s PowerBuilder. Hermon says, "People with hands-on client/server experience have the best job opportunities [in Boston]."

Meanwhile, the Administrative Computing Center at Boston University has several openings for professionals with multimedia skills, including an Adabas administrator and a complex instruction set computing programmer.

"It's getting tough to find people to fill multimedia positions," says Joe DiBlasi, director at the computing center. "Most people here are interested in newer technologies like C++ and Unix," he says. "Boston offers [people with these skills] a tremendous opportunity. Networking is exploding here just like in California." But this competition for newer skills means salaries at the entry level are about \$160,000 less than in Silicon Valley, says Koti Nandagopal, manager of systems at the Dana-Farber Cancer Institute in Boston.

According to Steele, many companies are moving toward emerging technologies, such as the Internet. "A year ago, only about 10% of our clients were getting involved in the Internet. Today, that number has jumped to about 50%," Steele says.

There also is high demand for information systems professionals at software companies, consulting firms and other high-technology-related companies. Positions most in demand include software development project managers, database administrators and technical support specialists, says Brad Leland, owner of Koteen Associates, an IS placement agency in Wellesley, Mass. ■

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SOURCE: National Association of Realtors, Washington

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SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Boston

Harts is a freelance business writer in Mercer, Calif.

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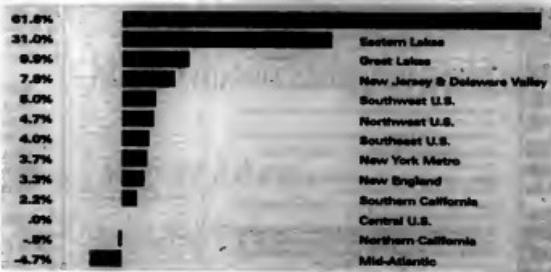
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COMPUTERWORLD May 6, 1996 (<http://www.computerworld.com>)

Marketplace

Planning brings rewards with data warehouses

Users say pace of business change makes data warehousing a corporate necessity

BY ALAN EARLS

Building a massive data warehouse for 1,000 users "started as a leap of faith," acknowledges an information systems manager at a \$20 billion retailer. In the 10 months since the warehouse began operating, however, results have exceeded expectations, he says. But like many in an industry that is running willy-nilly to embrace data warehousing, this manager admits that hard data on actual payback is hard to come by.

"We just know that the company is making good use of the information we can now provide," he says.

That has been enough to justify appointing a team of 10 people to manage the data warehouse full time and control its growth. But crucial to moving ahead, the manager says, has been the support of a key corporate executive.

Decision support in the goal

Justifying the project and getting corporate support are just two of the challenges to be found in implementing a data warehouse, a technology defined as an enterprise-scale database that is derived from one or more internal databases and intended for end-user decision support, according to consulting firm Aberdeen Group, Inc. in Boston.

Almost every company could benefit from quicker and better access to its aggregated data, but there are no stock formulas for predicting payback. That depends too much on the type of information a data

warehouse helps provide and on how the information is ultimately used, says Rich Finkelstein, president of Performance Computing, Inc., a consultancy in Chicago. Instead of predicting payback, users should identify a definite customer — "a user group that really wants to analyze data in a particular way," he says.

Most companies, Finkelstein says, should start with a narrowly defined scope — the so-called data-mart approach — rather than with a broad commitment to build a global data warehouse.

However, Robert Moran, director of decision-support research at Aberdeen Group, warns that starting small shouldn't be confused with thinking small. "You can start out with an application-specific approach, but you must keep in mind that the industry and your own business are evolving rapidly, so you must make sure you have the right data model behind a data mart," he says.

Moran says data warehouses typically triple in size every 12 to 18 months, in terms of the amount of information they contain. More often than not, additional customers appear once a warehouse is up and running. So it's crucial to make sure architecture and systems are scalable.

Then there are housekeeping details, such as making sure you build the capability to "scrub" data so that it is normalized, no matter which database it came from originally. "That can be a big problem,

especially for banks because you always have to make sure information is as accurate as possible," Moran says.

Of course, improved quality of information is what data warehousing is all about.

Data warehousing dos and don'ts

- ✓ Don't look for hard data on cash paybacks
- ✓ Do gain the support of a key corporate executive
- ✓ Don't get too ambitious at the start
- ✓ Do allow for rapid growth of your warehouse

Kelly Flynn, a database administrator/technology specialist at Flint Ink Corp. in Detroit, says his firm decided to try data warehousing in part because the company was always requesting information that was at least six weeks old and delivered in massive paper reports. Once the concept was in play, though, it became clear that data warehousing would also provide a convenient route away from the company's legacy system, he said.

"We had already begun migrating finance and other functions to midrange AS/400 systems, but the sales function was dependent on the mainframe," Flynn explains.

Flint Ink decided to build the data warehouse with in-house talent and a plan. About 1½ years before the target implementation date, Flynn and others started

attending seminars about data warehousing. "We spent weeks analyzing all the different products and methods," he says.

Another in-house implementer is Michael Prince, chief information officer at Burlington Coat Factory, Inc. in Burlington, N.J. There, the decision to pull the plug on the mainframe came first; then the retailer decided to build a data warehouse that would support not only decision-support activities, but also transaction processing, Prince said.

"That is not the classic approach, but others are beginning to move in that direction," he says.

For those wary of blasing trials themselves, help is abundant, Moran says. He says users can go to the Big Six accounting and consulting firms, "and you can often meet with hardware suppliers — especially parallel processor companies." In addition, some software vendors such as Pivotal Technology, Inc. are starting to focus on the area. Flint Ink predicts vendor-added resellers "will be coming on like gnatsbites in the near future with targeted applications and data mining."

And, Finkelstein adds, Internet and intranet approaches to data warehousing are on the horizon that may make it easier to acquire data warehouse functionality without some of the current complexity. ■

Earls is a business writer in Franklin, Mass.

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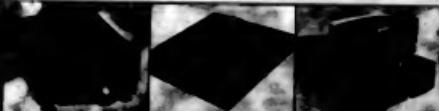
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Data warehousing on Wall Street

Data warehousing, a relatively unknown strategy in 1994, has hit Wall Street in a big way.

The few pure data warehousing plays on the Street, such as Arbor Software Corp. (Nasdaq:ARSW) and Red Brick Systems Inc. (Nasdaq:REDB), have doubled or tripled their initial public offering prices in just a few months. Analysts estimate that both companies will grow well in excess of 50%.

Data warehousing has become a hot buy because it is being embraced by corporate America. A recent survey of 145 large corporate information

technology managers by our research partner, Meta Group, Inc., found that 37% of respondents had already implemented an enterprise-wide data warehouse strategy by the end of 1995. Deployments by these same users are projected to leap to 69% by year's end, reaching 83% by 1997. In dollar terms, we expect the market for data warehouse software to grow from \$1.1 billion in 1995 to more than \$4 billion in 1999.

As Wall Street's demand for data warehouse stocks shows, such rapid growth in user deployments can only mean opportunity for software vendors. However, the valuations of Arbor and Red Brick may scare



off all but the most aggressive investors.

But the pure plays, neither of which has yet passed \$20 million in revenues, aren't the only avenue for data warehouse investing. We believe that the primary beneficiaries of user demand for data warehousing will be the vendors of relational database management systems software, in particular Oracle Corp. (Nasdaq:ORCL) and Informix Corp. (Nasdaq:IFMX). Both companies have announced aggressive data warehouse programs and have made strategic acquisitions to

bolster their offerings.

Of particular benefit to Oracle and Informix is the decided tendency of IT managers to extend existing installations and knowledge as opposed to replacing installed products with new ones. Users want software with which they are already familiar.

Oracle offers value in addition to the opportunity to invest in data warehousing. The stock trades at a significant discount to its growth rate. Earnings are estimated to grow more than 30%, but the current stock price is only 25 times our earnings estimate of \$1.27 for the fiscal year ending May 1997. Informix is more fully valued, trading at 32 times our earnings estimate of 72 cents for the fiscal year ending December 1996. However, the company's shares offer a vehicle for investing in data warehousing without paying double-digit multiples of revenues. ■

McNamee is senior vice president and director of technology at First Albany Corp. in Boston. He welcomes comments at gmcnamee@pacifier.com.

Silicon Investor has tech stocks covered

Don't be misled by the name. The Silicon Investor Web site at <http://www.techstocks.com> covers more than just semiconductor stocks, including 300-plus technology companies.

Investors can use the site to check the historical and comparative performance of tech stocks, as well as participate in online discussions of technology investment trends and particular stocks.

Looking for information on Sun Microsystems, Inc. (Nasdaq:SUNW), for example, I first checked the interactive calendar, which shows when various companies are expected to report earnings, go public or split their stock. Seeing that the company had just reported earnings, I went

to the Stock Talk section on Sun, which contained investor postings reacting to the report and commenting on the stock's most recent movements. Here is where the site seems to favor semiconductor companies.

For example, Sun's section included only eight postings on the day its earnings were released, whereas the Intel Corp. (Nasdaq:INTC) section included more than 40 postings on the day it disclosed earnings.

A useful feature in the chart generator, which graphs stock performance over a period of time ranging from 10 days to 100 months. You can graph by individual stocks or in groups, comparing one stock's performance to as many as six of its competitors.

The site also features 15-minute delayed quotes and company profiles that contain descriptions from 10K re-

ports, as well as links to company-supplied information.

The site requires registration if you want to post messages, add events to the calendar, create customized stock

groups to follow, or participate in its weekly poll of whether investors are bullish or bearish on tech stocks. ■

—Tom Hartert

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PICKED STOCK	PERCENT	CHANGED
ALTEC Labs	-0.4	-\$0.04
AT&T	-0.4	-\$0.04
AT&T Long Distance	-0.13	-\$0.13
AT&T Communications Corp.	-0.2	-\$0.20
AT&T Telecommunications	-0.2	-\$0.20
AT&T Corp.	-0.13	-\$0.13
AT&T Long Distance Div.	-0.2	-\$0.20
AT&T Communications Div.	-0.2	-\$0.20
AT&T Research Inc.	-0.2	-\$0.20
AT&T Information Systems	-0.2	-\$0.20
AT&T Services Inc.	-0.2	-\$0.20
AT&T Corp. (E)	-0.2	-\$0.20

DOLLAR

PICKED STOCK	PERCENT	CHANGED
AT&T Long Distance	-0.04	-\$0.04
AT&T Communications Corp.	-0.13	-\$0.13
AT&T Telecommunications	-0.2	-\$0.20
AT&T Corp.	-0.13	-\$0.13
AT&T Long Distance Div.	-0.2	-\$0.20
AT&T Communications Div.	-0.2	-\$0.20
AT&T Research Inc.	-0.2	-\$0.20
AT&T Information Systems	-0.2	-\$0.20
AT&T Services Inc.	-0.2	-\$0.20
AT&T Corp. (E)	-0.2	-\$0.20

Industry Almanac

Greetings from Micrografx

Famous for its legendary chili cook-off at each year's Comdex/Fall, Micrografx, Inc. (Nasdaq:MGFX) in Richardson, Texas, aims to become an integral part of all sorts of memorable occasions.

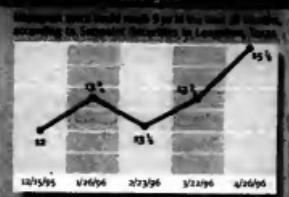
Through a partnership with American Greetings Corp. (Nasdaq:AGREA) in Cleveland, Micrografx plans to bring out a product that will allow PC users to create greeting cards and send them over the Internet.

That partnership, along with several other factors, has analysts' hopes high for the stock. Darren vonBehren, technology analyst at ComWest Partners, Inc. in Dallas, rates the stock a buy. The company is undervalued relative to its competitors, trading at twice revenue per share, a much lower multiple than Macromedia, Inc. (Nasdaq:MACR) in San Francisco or Visio Corp. (Nasdaq:VSHO) in Seattle, which trade at multiples of 10.7 and 8.9, respectively. And the company's partnership with American Greetings and its overall Internet strategy look promising, he says.

American Greetings' Create-A-Card kiosks in retail locations across the country already use Micrografx software. Although details of Micrografx's Internet strategy haven't been released, vonBehren says the company's major product, the ABC Graphics Suite, would make a good front end for viewing and manipulating graphics content over the Internet.

David Hayashi, director of research at Sunpoint Securities, Inc. in Longview, Texas, has had a strong buy on the company since December 1994, when the stock sat at about \$50. He estimates earnings of 60 cents per share for fiscal 1996, which ends in June, and \$1 per share for fiscal 1997. Hayashi's 16-month target price for the stock is \$25 to \$30. —Tom Hartnett

Good 'graffs



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AT&T Corp.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Long Distance Div.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Communications Div.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Research Inc.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Information Systems	80.99-122.71	100.00	0.0%	\$0.00
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AT&T Communications Div.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Research Inc.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Information Systems	80.99-122.71	100.00	0.0%	\$0.00
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AT&T Telecommunications	80.99-122.71	100.00	0.0%	\$0.00
AT&T Corp.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Long Distance Div.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Communications Div.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Research Inc.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Information Systems	80.99-122.71	100.00	0.0%	\$0.00
AT&T Services Inc.	80.99-122.71	100.00	0.0%	\$0.00
AT&T Corp. (E)	80.99-122.71	100.00	0.0%	\$0.00

Stocks Watched

Stock	12-Month Range	Price	Yield	Dividend
AT&T	80.99-122.71	100.00	0.0%	\$0.00
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Apple users hang tough

CONTINUED FROM PAGE 1

products across all market segments; focusing on the Internet; adding Internet features to its much-delayed Copland next-generation operating system; putting more resources into Apple's Newton; beefing up Pippin, the so-called Macintosh lite; and strengthening its line of servers.

Amelio needs to do something—and quick. Apple has lost several high-profile accounts in the past two years, and within the Computerworld survey base, almost a quarter (22%) said they are considering leaving the Macintosh platform for a PC. A little less than half of these — 41% — plan to do so in three to six months.

Indeed, Apple's recent slate of prob-

lems has some longtime users worried about Apple's visibility in the future and considering the previously unthinkable — a move to Windows.

Windows watching

"Windows is starting to look attractive. It may not be as slick as the current Mac OS or [the promised] Copland, but it works well enough to get the job done," said Frank Calabrese, information technology manager at Bose Corp., an audio equipment maker in Framingham, Mass., which has 1,800 Macintoshes and 400 PCs.

Calabrese said Bose continues to buy Macintoshes for now. "Every new employee we hire gets a Mac because at this point, that's all we can adequately support," he said. "But we are starting

to train more techs on Intel." Another example is NASA headquarters in Houston, which recently jettisoned the Macintosh in favor of standardizing on a single platform — Windows.

Some Macintosh users said they can no longer defend their platform choice to management.

Jim Anderson, team leader of client services at Nutrasweet Co., a Mount Prospect, Ill., company with 229 Macintoshes, said although he isn't worried about Apple's future, Morrisons Corp. — Nutrasweet's parent — is considering a move to Windows.

"It has little to do with what [operating system] is better and more to do with minimizing training and standardizing on a single platform," Anderson said.

While Apple isn't seeing waves of defections, such sentiments indicate a troubling trend. Sales are already slipping. Apple shipped 940,000 units in the first quarter this year, compared with 1.05 million for the same quarter last year, when it had 7.7% of global PC unit shipments, according to Datasquest, a market researcher in San Jose, Calif.

Later quarters telling

Datasquest analyst Kimball Brown said he expects Apple's overall market share to bounce back later in the year, historically a strong period for education and consumer sales.

Still, feedback from random calls to Apple's core customers in publishing, graphics, multimedia, education and research belie Apple's numbers and show that many users remain unfazed in the face of major changes at Apple.

"I have 100% confidence in Apple."

Polishing their options

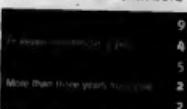
While most users are planning to stay with the Mac

Are you considering leaving the Macintosh platform for a PC?

Base: 22 Apple users



When do you plan to do this?
Of the 22 respondents who may move to a PC



Base: 22 Apple users

said Sue Rusiecki, lead consultant of end-user services, Macintosh computers at Mount Holyoke College in Hadley, Mass., which has about 500 Macintoshes and 500 PCs.

"The Mac is still the strongest force in publishing technology," said Daniel Henderson, the production manager at *The New Yorker* magazine, which has 200 Macintoshes and a handful of PCs.

"We are devoted to the Mac," said Betty Baldwin, a computer specialist at the Space Sciences Division at NASA Ames Research Center in Mountain View, Calif., which has more than 3,000 Macintoshes. "Our users would die if they told us we had to change from the Mac."

Slippery slope of recovery

On obstacle facing Apple, according to observers, is that declining market share often snowballs, and that sort of slide is hard for any company to recover from.

Some Macintosh software developers have already stopped creating applications for the Macintosh flavor of Windows. The few application choices there are on the Macintosh, the harder it is to attract new users or keep current ones.

"What hurts in education is the financial administrative end will require a client/server application, and maybe the developer did not realize the Mac version of the client available as quickly as the PC version," said Sue Rusiecki, lead consultant of end-user services, Macintosh com-

puters at Mount Holyoke College. Observers said this vicious cycle makes it even more imperative that CEO Gilbert Amelio's keynote speech at the company's upcoming developer conference send a clear message about the company's future direction.

The conference is expected to draw more than 3,500 commercial and corporate Macintosh developers, but it needs to be more than the typical Apple fest.

"We would appreciate nothing more than a computer that works as advertised and is delivered when announced," said Frank Calabrese, IT manager at Bose Corp. "Beyond that, we need a clear message, and the company has to be somewhat solid." —Lisa Sciarra

with the announcement.

Sunnyvale, Calif.-based Amdahl will also tout a high-speed fiber-optic connection to link the new NT servers to System/390s, sources said.

Amdahl's offering fast mainframe-to-NT connectivity would make EnVista "very desirable," said Peter

Bauer, director of information systems at Marshfield Clinic in Marshfield, Wis.

"It does make a difference if Amdahl offers it," Bauer said. "We have Amdahl reps stationed at our site. They have an office in our building." Amdahl officials declined to comment.

Measuring up

Project	Amdahl's EnVista	Compaq's ProLiant 4500	Hewlett-Packard's NetServer LS	IBM's PC Server 704
Processor*	Pentium Pro	Pentium	Pentium	Pentium Pro (mid-May)
Clustering	Yes	No	No	No
Expansion slots	NA	8 EISA	3 PCI, 4 EISA, 2 shared	6 PCI, 4 EISA
Pricing	NA	NA	\$10,889 (4 processors)	\$18,995 for 1 processor

*All products are available to four processors. NA: information not available from vendor.

Amdahl serves up NT

CONTINUED FROM PAGE 1

server from its mainframe vendor, said Gordon Dahlman, an information services manager for the Texas city.

Dahlman said Amdahl's move to support Windows NT is a responsive one. "Amdahl is very cognizant of the user community. As people were moving off the mainframe onto these smaller distributed systems, they had some concerns about that, and they said, 'We need to be able to connect to those systems,'" he said.

The EnVista servers will use Pentium Pro processors from Intel Corp. and Microsoft's Windows NT Server operating system. It will scale from one to four processors in a symmetrical multiprocessing configuration.

And users will be able to set up clusters of as many as eight EnVistas to get a single enterprise-system image with 32 processors, according to sources familiar

Novell directory too late to play in big time

Charles Babcock

Novell is attempting to shore up its future by making Novell Directory Services, formerly NetWare Directory Services, a widely used industry standard.

But there's a lot of work to do. By the time Novell gets NDS ready for Windows NT and Unix, the world will have changed so much that NDS will fill only a legacy role.

Not that there's anything wrong with NDS. On the contrary, it's a highly underrated piece of software. It would be better known and more highly regarded if it weren't that Novell's own marketing and strategic savvy keep stealing the limelight.

Novell plans to port NDS to run natively under Windows NT and the major Unixes. This is a good idea whose time has come — and gone. It would have meant something two years ago, when NetWare 4.0 emerged. If Novell had committed itself to offer superior directory services on other systems, Novell's first port to NT won't be available until the first half of 1997, and the Unix ports

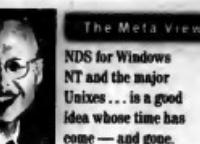
will come later.

A more universal NDS will still be an attractive alternative to the directories on Microsoft's NT, IBM's OS/2 Warp Server, Sun's Solaris, HP's HP-UX or SCO's UnixWare, and NDS may enjoy a small measure of success in 1998-99.

But, at heart, this is a "You-can't-beat-em, join'em" line of attack on the competition. Novell has obviously concluded that Windows NT will be established as a widespread system and will take a bite out of Novell's LAN turf. Rather than sit petulantly on the sidelines, it has decided to split out its most competitive product, promote it and try to shore in the successes.

Likewise, with Unix, Novell tried to sell UnixWare to a mass market and failed. Instead of walking away from Unix users, it would like a second chance to sell them directory services.

I think both Unix and Windows have a great future, and much of today's LAN environment will



The Meta View

NDS for Windows NT and the major Unixes . . . is a good idea whose time has come — and gone.

be reorganized around TCP/IP and those two systems. Such a simplifying process will lay the groundwork for corporate intranets. Intranets will represent a radically different environment from today's mishmash of LANs, servers and mishaps that passes for client/server computing. Indeed, if Novell succeeds in splitting NDS out of NetWare, its main role may be to serve as the directory for this residual thicket, as something more important takes shape around it.

On tomorrow's intranet, however, there will be little room for auxiliary servers. An intranet is predicated on a few open standards that rule the environment and open channels of communica-

tion through a common user interface.

Novell's NDS does a good job of administering today's NetWare and could administer Windows NT and OS/2 Warp Server LANs. But the PC LAN will be replaced by something more scalable,

manageable and connected to the Internet. And a new force in directory services emerged April 22 when Netscape Communications in Mountain View, Calif., supplier of the Internet's Navigator browser, lined up behind the Lightweight Directory Access Protocol (LDAP).

LDAP eliminates the need for a bulky, comprehensive directory. LDAP presumes the network is based on the Internet Protocol, or IP, which eliminates the need for many other networking protocols that are encapsulated in the X.500 standard.

Clients and servers in the future will include LDAP support. That means clients will have an easier job finding a directory and

using its naming and locating services. LDAP was derived from research by the Internet Engineering Task Force and work at the University of Michigan to find a way to provide common directory services to thousands of users on an IP net. X.500 theoretically was the answer years ago, but it couldn't presume a single net. And it's so big, it can't sit on a desktop client.

The emerging intranet, like the Internet, can presume that single protocol (IP). The LDAP work specifies a stripped-down approach on how clients access IP directories. Indeed, the need for a lighter-weight specification was so obvious that Novell was among the 40 companies to promise LDAP support.

So Novell will play a role in this emerging environment, but it is an auxiliary and a legacy rule. What Novell needs more than anything else is a primary task that it can fulfill in this shifting, client world, and it's still looking for it.

Babcock is Computerworld's technical editor. His Internet address is charles_babcock@ew.com.

Inside Lines

Bay powers up System 5000 hub

Bay Networks this week will announce six switching products, including Token Ring and Fiber Distributed Data Interface switching for the high-end System 5000 hub. The System 5000 currently supports only Ethernet and Fast Ethernet switching modules.

Middleware makers make up

IBM and IONA Technologies haven't always been the best of friends in object-middleware industry battles. But at the Object World trade show this week in Boston, the two companies are expected to announce a strategic alliance that will link Boston-based IONA's Orbis with IBM's System Object Model (SOM). Orbis and SOM match the Object Management Group's Common Object Request Broker Architecture. The deal should make it easier for SOM to connect to non-IBM platforms — and IONA to connect with large customers.

Adobe builds links to Netscape

Adobe Systems on Tuesday will announce a technology agreement with Netscape designed to stabilize Hypertext Markup Language information that is sent from World Wide Web browsers to printers. Computerworld has learned.

Save the sales

The National Weather Service plans to do targeted forecasts for the 34 athletic venues at the upcoming Olympic Games in Atlanta, using a loaned IBM parallel processor and Hewlett-Packard workstations. Why bother with the

indoor facilities, which probably don't have much to fear from the elements? Lars Rothblad, the lead meteorologist for the Games, noted that the indoor venues will be surrounded by tents where vendors will hawk food and Olympic merchandise. And we don't want those overpriced souvenir T-shirts to pick up any water damage, now do we?

Power drain?

The Electrical Messaging Association (EMA) promotes its membership as the "Power 1000." There's one hitch: There are only 534 members, acknowledged EMA Chairman Steven Mahaney during the group's annual conference in Anaheim, Calif., last week. With the growth the association is experiencing, it should reach 1,000 members in the near future, he predicted.

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Check the documentation

Lotus Notes users who are tired of the load their PCs make when a new e-mail message is received can fix a bug suggested by a user on a Computer-Serve discussion forum. "Remove the screws from the back of the PC and take off the cover. Locate the small PC speaker. Stab it six or eight times with your screwdriver until it is shredded and the wires are dangling loose. Replace the cover. Simple!"

Faster Ethernet analysis

Start-up Shonto Systems in San Jose, Calif., next week will introduce a protocol analyzer that will let troubleshooters capture and decode Ethernet packets at high speeds, switched segments, even in full-duplex (two-way) mode. The Century LAN Analyzer software runs on any Windows PC and will cost \$499.

A small Web software maker called PrinNet last week quietly started testing a plug-in for Netscape's Navigator browser that automatically blocks ads from your view of the Web pages you visit. The product, Internet Fast Forward, can filter out any graphics bigger than a predefined size. The goal is to get the Web moving faster, according to the vendor's Web site (<http://prinnet.com>). But some net users don't see it that way. "What's going to happen to the Web down the road if cool new sites aren't funded [with ads]?" wondered one IS pro. Hmmm. Good question. Tell us editor Patricia Keay what you think about the Web's future, or any other industry debate, at (508) 820-8183 or via the Internet at patriot_keay@icsi.com.

The 5th Wave by Rich Tennant



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